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VARIOLA EQUINA = HORSE-POX.

(Contributions to Veterinary Medicine and Surgery on Subjects not fully described by authors.)

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THIS disease having appeared in an enzoötic form in this city during the past winter, enables me to furnish some practical facts with regard to it, which, while they go to corroborate the experiences and observations of Chauveau, Bouley, Reynal, and Röll, and the facts collected and ably written by Mr. Fleming in his "Sanitary Science and Police," will, I hope, be interesting, if not instructive, to some at least of the readers of the *Veterinary Journal*.

In the article under this head by the last-named author, he says: "It has only been perfectly recognised and described in Europe within a recent period—England claiming the distinction of being the first to distinguish it, and to indicate its relation to Cow-pox." Professor Williams, in his standard work on veterinary medicine, says: "It is placed beyond a doubt that the horse is subject to a true equine pox of the same kind as

the Small-pox in man and Cow-pox in the cow. . . . When Small-pox was raging in Edinburgh, in 1872, I saw one case of what I considered genuine Equine-pox." Professor John Gamgee, in referring to this disease in "Domestic Animals," says: "But very little of that disease has been noticed of late years, though I know of several farriers who have been affected from the horse and resisted subsequent variolation or vaccination, and have seen a few who distinguish between the equine vesicle and the 'Grease,' a recurrent disease—*eczema impetiginodes*, as it appears to me."

Professor Law, of Cornell University, says: "This is probably identical with Cow-pox, being indistinguishable when inoculated on men or cattle. It most frequently attacks the limbs, but may affect the face or other parts of the body. There is usually some little fever, which, however, passes unnoticed by the owner. Then swelling, heat, and tenderness supervene, commonly in a heel, and firm nodules form, increasing to one-third or half an inch in diameter; the hair bristles up, and the skin reddens unless previously coloured. On the ninth to the twelfth day, a limpid fluid oozes from the surface, and agglutinates the hairs in yellowish scabs, on the removal of which a red raw depression is seen with the seal fixed in the centre. In three or four days the secretion ceases, the scabs dry up, and the parts heal spontaneously. It is easily transmitted from horse to horse, and to man or the cow. No treatment is required."

It seems very strange that since Dr. Loy called the attention of the medical profession to this subject, early in the present century, it should not have been noticed by any of our English veterinarians; at least, I cannot find any description of it except as quoted above.

On referring to French and German veterinary literature, we find that the disease has not only been recognised, but accurately described. Röll says: "It has been known for a long time that a pustular eruption occurs in the horse, which, being transmitted to cattle, produces Vaccinia. It has been several times observed in France of late years; we have transmitted it both to man and cattle; it is evidently varioloid in its nature.

"The eruption generally breaks out on the posterior part of the pastern; in most cases it is preceded by a febrile reaction more or less intense. It is characterised by swelling and discoloration of the skin, which is very painful, and varies in colour from a rose to a dark-red colour. On the tumefied skin we perceive nodules or pustules in variable number, and from them oozes a yellowish viscid fluid, which, by exposure to the air, rapidly hardens and adheres to the hairs.

"In the hollow of the pastern the infiltration and redness of the skin are considerable, and the epidermis eliminates a viscid, fœtid liquid, which covers it. The fever and the tumefaction of the skin soon diminish, and the secretion from the latter is lessened; it dries up, desquamates, the scabs fall off, and the malady terminates favourably in a fortnight or three weeks."

Bouley saw, co-existing with this exanthema, a vesicular eruption on the buccal mucous membrane, lips, nose, pituitary membrane, and conjunctiva; and by inoculating a cow with the contents of the vesicles he obtained vaccine.

He says: "In 1855 we had several occasions to observe the same exanthema in cavalry horses. The affection is transmitted to other horses by natural infection or inoculation. We failed," he says, "in transmitting it to cattle. We know of no cause for this affection, except its being contagious. The cure requires not the intervention of art; it is sufficient to prevent any action injurious to the diseased parts."

Its origin in Montreal is difficult definitely to account for, unless we attribute it to a varioloid atmospheric contamination (if such an expression is allowable); for it is well known that Small-pox has been and still is alarmingly prevalent in the city, owing to the faulty sanitary condition of certain parts of it, but more especially to an insane prejudice which exists amongst many of the French Canadian population against vaccination.

It first appeared early in February, and for a few weeks spread with considerable rapidity, until at last several hundred horses were affected. In some cases it spread apparently through inoculation, in others it appeared where this was very improbable—often where only one horse was kept, and the

groom had no communication with those affected, not even through curiosity,—fear of contracting the disease himself, or conveying it to his horses, having caused him to keep away from all contact with it. Hence its enzoötic character, and its communicability through atmospheric influences, is established.

That it is contagious there can be no doubt, and I also believe it to be infectious. In most of the stables which it visited, it attacked the majority of the horses; in some instances, while one horse was affected in the heels or legs, the adjoining horses, from their heads coming in contact with the diseased one, have been affected only in the head. Several instances occurred in which grooms became inoculated; in one case the vesicles formed on the face and neck, from the man rubbing a spot or pimple on his face after dressing his horse's legs. He was considerably fevered; complained of pains all over his body, with lassitude and unfitness for work. About the third day the vesicles appeared, several on the face and three or four on the neck. I had him sent to the hospital, where he remained for about a fortnight. The vesicles became pustular, the viscid discharge dried on its surface, and formed a brown scab exactly similar to that of Vaccinia, which it resembled in every particular. In another case, the groom having to dress his Piles, inoculated himself, and gave rise to a very painful attack of Variola Equina in this delicate situation. One of the students of the Veterinary College, having a scratch on his thumb, became inoculated, and not suspecting the nature of the vesicle, on several occasions sucked it after squeezing the lymph out, and produced, to his surprise, a beautiful crop of vaccine-like vesicles on his upper lip. These went through exactly the same course as Vaccinia.

At the Veterinary College, I inoculated a cow in four different parts of the udder. Three of the inoculations produced perfectly developed vaccine vesicles, with the lymph of which I vaccinated another cow in four places, all of which took well and went through the genuine vaccination courses, and furnished me with four perfect crusts. These failed in two instances when used to vaccinate children, as also in that of a dog. This, however, is not surprising, as I have seen the genuine vaccine

lymph from the cow repeatedly fail—both when occurring naturally and when artificially produced—without being able to give any satisfactory explanation why it should do so.

This outbreak of Horse-pox appeared early in the month of February, first in a few scattered cases, and gradually increased till it became epizoötic. Several hundreds of cases must have occurred during that and the two succeeding months. At first it was mistaken by horse owners, and some of the members of the profession, for what is known on this side of the Atlantic as "Scratches," or "Cracked Heels," which is a very common attendant on the long-continued mud and melting snow of our spring and autumn, and consists in irritation of the glandular structures of the dermis in the hollow of the pastern. It readily yields to poultices, followed by astringents, cessation from work, and laxative diet. The consequence was, that under this treatment the disease was aggravated, retarded in its course, and complications resulted, in some cases of a very serious nature.

In several of the early cases which came under my notice, the symptoms were very characteristic—so much so as to make it quite unmistakable. Dr. Larocque, the Medical Health Officer of the city and Superintendent of the Small-pox Hospital, Professor Osler, and others of our leading medical men, visited many of the cases, and unhesitatingly pronounced the malady to be varioloid.

The symptoms varied somewhat in intensity, according to the part on which the eruption occurred; being more severe when in the heel or front of the hind-leg, than on the head or body. In all the animals the earliest indications were fever, lassitude, loss of appetite, slight increase of temperature, pulse from 55 to 70, gradual swelling of the limb—usually a hind one, sometimes a fore one, and in many one hind and one fore, or both hind and both fore limbs simultaneously.

The fever and swelling usually attained their full intensity in about three days, when the skin in the pastern (supposing that to be the seat of the eruption) assumed a pink-red, or bluish-red colour, speedily followed by vesicular eruptions. In some cases these were discrete, and resembled exactly the vesicles of Small-

pox. These pocks, when undisturbed by the attendants or the animal, seldom became confluent, but went through a definite course. First the pock was a vesicle containing and discharging a clear, viscid, lymph-like fluid, possessing a peculiar fœtid odour; this fluid, in drying on the surface, formed a scab which covered the vesicle—now become pustular; and if left alone, in a varying period of from ten to twenty days, this scab was thrown off, leaving a healthy and granulating surface below. On the body and front of the legs, the desiccating process was protracted, owing to the agglutination of the hair by the viscid discharge.

In many cases the swelling was very extensive and painful, extending to the body, and sometimes along the belly; in some it gradually subsided with the progress of the disease; while in others it continued for weeks afterwards. Its absorption was more protracted in the hind than in the fore-legs. A description of a few cases may best illustrate the symptoms in their different forms.

Case I.

On the 24th February, a black horse, seven years old, belonging to a gentleman in the city, and used as a carriage-horse, was admitted to the College hospital, suffering from Variola—and presented the following symptoms: Pulse 56, mouth hot, eyes dull, appetite impaired, thirsty, and disinclined to move; the right fore-leg was swollen to the elbow, and hot and painful; in front of the knee there was a raw surface distinctly nodular; and extending in all directions from the sore, at irregular distances, were numerous vesicles, in some places two or three coalescing, the majority being an inch or two apart, and spread over the swelling. The fluid before mentioned oozed from each, and drying on its surface, formed a yellowish covering for it. The abrasion on the knee was caused by the animal having gnawed it before being admitted. The hollow of the pastern presented the same eruptions, but they were confluent, the discharge forming a large dry cake covering a raw surface. The lips, gums, and nose were studded by pea-shaped vesicles, resembling the others; and the hollow of the pastern of the left hind-leg was also covered by these vesicles, which extended half-way up the

back of the cannon. On this leg, owing to its having been washed with soap and water, poulticed, and otherwise treated as if for "Grease" or "Scratches," the nodules had become confluent, thickened, and attended by more or less induration of the subdermal structures.

This case had been affected for nearly a week before being admitted. A few days afterwards the vesicles became pustular, and by the 10th of March the scabs had mostly dropped off, the swelling and fever had subsided, and the animal was discharged, but was not sent to work for ten days subsequently. The swelling of the hind-leg continued for more than a month.

Case II.

A pair of carriage-horses were affected—one on the left hind-leg, the other on both hind-legs. In the former it was principally confined to the anterior part of the cannon, extending in vesicular eruptions from the fetlock to the hock, and accompanied by considerable fever, swelling, and pain. Owing to the gravitation of the lymph, it assumed the confluent type, forming one adhesive cake or scab, which covered the surface, and having a copious pustular discharge undermining and escaping here and there—the vesicular character being in every stage distinctly visible. This horse's companion was similarly affected, but the eruption was confined more to the heels. This case was apparently inoculated from the other horse, as was also the groom. In both cases the swelling was extensive and persistent. They were discharged on the 5th of March, but the swelling did not completely subside for nearly six weeks.

Case III.

A bay mare, the only animal in the stable, presented the usual febrile symptoms; with tumefaction of the left hind-leg, followed in three or four days by discoloration of the skin in the hollow of the pastern, and the eruption of one or two large vesicles; accompanied by intense pain, and a copious clear albumen-like discharge, adhesive and drying on the skin and hair, as in the other cases, but so copiously effused as to prevent a scab forming. In a few days there appeared three or four similar eruptions on

the leg and thigh, which discharged copiously for some time, then dried up and scabbed over—the swelling rapidly subsiding. In three weeks recovery was complete.

Case IV.

March 16th, a bay gelding, kept in a livery stable containing about thirty horses, four of which only were affected. The febrile symptoms were not severe—in fact, were scarcely observable. The swelling was limited to the neck, the side of the chest, and one quarter. The eruption was well-marked, especially on the quarter—about two dozen pocks covering a space about a foot in diameter. In this case all the stages were well defined, the scabs falling off on the fourteenth day, leaving genuine pock-marks, which only disappeared with the growth of the spring coat.

Case V.

A bay gelding, one of three, all of which were affected. In this horse the vesicles were confined to the lips, gums, Schneiderian membrane, and eyelids. The febrile symptoms were mild; the tumefaction was followed by well-marked vesicles about the size of a pea; the external ones, from being rubbed by the animal on the side of the stall, were raw, depressed in the centre, and discharging a viscid lymph, with the characteristic mouse-like smell. Where the vesicles were not rubbed, they were covered by the yellowish or grey-coloured scab, gradually becoming darker in colour as the pustular and desquamating stage advanced. The mucous membrane of the mouth presented an appearance resembling the Vesicular Epizoöty of cattle in a mild form. The nostrils were surrounded with the viscid glutinous lymph; the pituitary membrane was studded with the vesicles, most of them uncovered—the copious discharge preventing scabs being formed. The submaxillary glands were enlarged, but not indurated. The case altogether resembled Glanders. It ran its course in about fourteen days, when the symptoms gradually disappeared. The other two companion horses were affected—one in the fore-leg severely, and the other in the hind-leg mildly.

The above cases will serve to show the different forms which the disease assumed, but not by any means all the complications which were produced by the injudicious interference of those in attendance, and who, not recognising the variolous nature of the disease, interrupted its natural course, and not only delayed recovery, but in many cases well-nigh caused the death of the animal.

It is a fact worth noting that, as remarked by Professor John Gamgee, "all variolous fevers are characterised by a definite course and duration. They cannot be cut short without endangering the patient's life, and in all there is a period of incubation, eruption, and desiccation."

Treatment.—In all cases in which the disease followed its natural course, no treatment was required, other than attending to the comfort of the animal; although in the majority of the cases either sulphite of soda or bitartrate of potash was freely administered, without producing any perceptible effect on the course or duration of the malady.

Purgatives were also administered, especially where there was much swelling; they were followed by saline diuretics with very good results. In confluent cases, when the crusts became thick and hard, simple dressings with oil and sulphur were used. As above remarked, where the natural course of the disease was disturbed by injudicious interference, the case was protracted and likely to become complicated.

AMAUROSIS.*

BY T. SMITH, M.R.C.V.S., ARMY VETERINARY DEPARTMENT.

OF the few diseases of the eye to which the horse is subject, none, I think, has received less attention, or the pathology of which is less understood, than the one under our notice; and yet the detection of this disease, in examining a horse for soundness, is so important as to hardly deserve comment. The reason for this want of knowledge (if I may so call it) of this affection

* Read before the Central Veterinary Medical Society.

is, I believe, attributable to two causes. Firstly, the disease being so insidious in its nature as to render the horse blind before the owner is aware of it, and our utter inability in many cases to account for it, either during life, or even on examination of the organ after death. Secondly, the fruitlessness of treatment in many cases, which has caused it to be looked upon as incurable, and its pathology to be summed up in the few words, "Paralysis of the Optic Nerve." This explanation of the pathology of this affection is generally considered to be the only one, in much the same way as opacity of the lens or its capsule constitutes cataract; but I will endeavour to show that there are many more causes than the one named, all of which are likely to give rise to this disease.

Amaurosis is an imperfect or total loss of vision, through disease of the optic nervous apparatus. The word literally means "to darken." The expression "Gutta Serena" is often used as synonymous with Amaurosis, but it is more properly applied to that full development of the nervous affection in which complete blindness has been produced. The term seems to have arisen from a mistaken idea of its pathology, it being supposed to result from an effusion behind the pupil, and as the latter opening retained its natural colour, the effused drop was said to be clear. In the following passage of his address to light, the poet Milton translates literally this expression of "Gutta Serena:"—

> "But thou
> Revisit'st not these eyes, that roll in vain,
> To feel thy piercing ray, and find no dawn;
> So thick a 'drop serene' had quenched their orbs,
> Or dim suffusion veiled."

Suffusion was also a term employed to denote general imperfection or loss of sight.

Amaurosis may be partial or complete—one eye sound, the other amaurotic, or both amaurotic.

The situation of this disturbance of the ocular nervous apparatus may be in the brain, at or beyond the origin of the optic nerve, in the nerve itself, from its origin in the brain to where it pierces the sclerotic coat of the eye; or, lastly, it may be in

the retina. If the retina be affected, it cannot receive the impression of the rays of light which would ultimately be conveyed by the optic nerve to the brain; if the optic nerve, it cannot convey the visual impressions from the retina; and if the brain, it cannot perceive the visual impression conveyed by the optic nerve: the result is the same whichever part of the optic nervous apparatus is affected. The causes likely to give rise to this affection may be divided into those which operate externally, and those in which a morbid change goes on within the optic nervous apparatus. The extrinsic causes are abscess, tumour, concussion, congestion and laceration of the brain, exostoses of the bones of cranium or orbit, abscess and tumour of the orbit, fracture of cranial bones, with depression, extravasation of blood on the brain, excessive hæmorrhage, and blows on the orbit or head.

The intrinsic causes may be a defective supply of blood to the optic nervous apparatus, or its congestion; direct injury of the nerve, and Retinitis.

Symptoms.—A cursory examination would probably fail to detect anything the matter with the sight, but on looking more critically at the organ, we notice a full prominent condition of the eyeball, of a staring character; the palpebral fissure in many instances is larger than in health; the pupillary opening is in by far the majority of instances more or less dilated, and if not quite immovable, its movements are limited and slow. In cases in which one eye only is affected, the pupil often moves quite naturally, and consentaneously, with that of the other eye; but if you cover the sound eye, the pupil of the amaurotic one remains immovable, or nearly so, being uninfluenced by the degree of light. Sometimes, in complete Amaurosis of both eyes, the pupils are as obedient to change in the degree of light as in health.

I shall attempt to explain these peculiarities in describing the movements of the pupil from Wharton Jones.

The circular fibres of the iris, by which the pupil is contracted, owe their contractile power to the nerve of the third pair, whilst the radiating fibres, by the action of which the pupil is dilated, owe their contractile power to nervous fibres derived from the

sympathetic. When fixed dilatation of the pupil occurs, it may be owing only to that branch of the third pair which goes to the lenticular ganglion, but in many cases of Amaurosis in which the pupil moves in concert with that of the sound eye, there is no reason to suppose the third pair to be affected. The dilatation of the pupil is most probably owing to spasmodic contraction of the radiating fibres of the iris, overpowering the action of the circular ones. If this be so, the contraction of the radiating fibres may be supposed to be owing, in the amaurotic cases, to reflex action of the nerves, on which the contractile power of the radiating fibres depends, called forth by the insensible state of the retina, in a manner analogous to that in which the absence of the stimulation by light of the healthy retina calls forth dilatation of the pupil; whilst, in consequence of the same insensible state of the retina, the reflex action of the nerves on which the contractile power of the circular fibres depends is no longer called forth by the stimulus of light; but in cases of a fixed dilatation of the pupil in which the retina is quite sensible, the mode in which the excitement is communicated to the nerves supplying the radiating fibres of the iris must be different. By cutting the sympathetic and vagus in the neck of dogs, contraction of the pupil takes place in consequence of the radiating fibres of the iris being thereby deprived of their supply of nervous influence, and paralysed, while the circular fibres continue in a state of unrestrained contraction. But as an immediate effect of the section of the sympathetic, dilatation of the pupil may occur, because of the irritation of the nervous fibres, excited at the time by the section. Persistent contraction of the pupil, apparently in consequence of spasmodic action of the circular fibres of the iris, occurs in some cases of Amaurosis: this appears to be caused by an irritable state of the retina exciting reflex action of the nerves of the third pair, in a manner similar, except in degree, to what occurs in ordinary circumstances, by the action of light. Wharton Jones remarks, that in some cases this spasmodic action appears to be occasioned by irritation of the branches of the ophthalmic branch of the fifth nerve exciting reflex action of the *motoris oculi*. In some cases of amaurotic blindness the motions of the pupils under the influnce of light are natural. This is explained by

supposing that the morbid condition on which the blindness depends, involves only that part of the brain which is the seat of visual impressions, and that it is in the front of this part of the brain that the condition of structure through which reflexion takes place from the optic on the oculo-motor nerve exists. The case above-mentioned, in which, as long as the sound eye was uncovered, the pupil of the diseased one moved naturally, but as soon as the sound one was covered the amaurotic one remained fixed, is, I think, explained by the fact that the optic nerves have each a root in both sides of the brain, and may therefore each be connected with both oculo-motor nerves.

Treatment.—We are not often called upon to treat this affection in the chronic state, as in many cases the horse has been blind for some time before it is discovered, or our opinion asked for. If it were possible to determine any cause giving rise to the blindness, the removal of this, if practicable, with the internal administration of calomel and opium, would be the proper course to pursue; but it must be acknowledged that treatment in most of these cases is absolutely useless. But where it arises from a clearly definite cause—as, for instance, a blow over the orbit, with injury to the superior orbital nerve (and this I look upon as the most common of all causes)—the general antiphlogistic plan of treatment suggests itself: bleeding, purging, fomenting, with application of belladonna lotion, and the internal administration of calomel and opium. This latter is a treatment which must be steadily persevered with; ʒi. calomel, combined with ʒss. opium (to prevent the calomel being carried off by the bowels), is to be given morning and evening in a bran mash, until its good effects are noticeable. A lotion, also composed of Ext. Belladonna, grs. xxx., aqua ʒi., should be used, ten minims being dropped into the eye three times a day; this is indispensable where any degree of Iritis exists. In cases where sympathetic Amaurosis is present, as the result of Chronic Inflammation or disorganization of the opposite eye, the calomel and opium treatment should be persevered with; and I should recommend, as worthy of a trial, hypodermic injection of strychnia over the superior orbital nerve or orbital process, commencing with about a grain twice a day, and gradually increasing it; or another way of applying the

same remedy would be to blister the orbital arch, and sprinkle the powdered strychnia on the blistered surface: counter-irritation might also be productive of good effects.

When there is reason for suspecting that the blindness takes its origin from vascular exhaustion or nervous debility, we must have recourse to tonics, preparations of iron, and nourishing diet. But, after all, we shall find many cases which will baffle our best-directed attempts to cure. In speaking of the causes liable to give rise to this affection, I named among them blows over the orbit, and this I stated in my opinion to be the most common. As I have lately had a case under treatment, I should like to give you the outlines of it.

The patient was a bay mare, aged six years, who had received, six weeks before my seeing her, a blow over the left orbit in the hunting-field. There was a partial closure of the palpebral fissure, with opacity of the cornea, contraction of the pupil, and suffusion of tears over the side of the face; the iris (what could be seen of it) was of an orange tinge—in fact, there was every symptom indicative of acute inflammatory action going on in the eye. I had the horse placed upon half-and-half (bran and oats) diet, had a blister of biniodide of mercury applied around the orbit and face, and gave internally powders consisting of calomel ℈i., Pulv. Opii, ʒss.; these were administered night and morning. As Iritis, and probably Retinitis, was present, the belladonna lotion I spoke of before was dropped into the eye three times a day; but as slight adhesions had formed around the iris, there was great difficulty in getting the pupil dilated; this was, however, satisfactorily accomplished by the third day. A cloth was also kept over the eye, saturated with solution of Ext. Belladonna, after the blister had acted. In a week improvement was manifest; the opacity cleared away, and the palpebral fissure began to assume its normal size; but about this time occurred what I had expected,—namely, sympathetic Amaurosis of the other eye; and this is not to be wondered at when we consider the interchange of the fibres of the optic nerves, and that when any morbid action exists in one it extends to the other. This continued for about a fortnight, when symptoms of returning visual power became manifest: during the whole of this time

mercury was exhibited. Nearly the whole of the opacity of the near eye had now disappeared, and I was enabled to examine the interior of it. I found that dislocation of the lens had taken place into the post-chamber as the result of the blow, which renders the horse (unless he could wear an eye-glass) permanently blind, or nearly so, of that eye. A month has now elapsed, and the patient is enabled to see quite well by the right eye. I consider this a good illustrative case; and I have not the slightest doubt in my own mind that, if the unfortunate dislocation of the lens had not occurred in the near eye, the horse would have regained the sight of that also.

PHYSIOLOGICAL AND THERAPEUTICAL NOTES ON NITRITE OF AMYL.

BY JOHN DOWLING ALLMAN, CREECHURCH LANE, LONDON.

IN the *Veterinary Journal* for June, Mr. A. Lawson, M.R.C.V.S., Manchester, gives a case of "Traumatic Tetanus," cured by nitrite of amyl. Mr. Lawson says, "This remedy being new, I hope some members of the veterinary profession will give it a trial." As Mr. Lawson has not said sufficient regarding this powerful drug, perhaps a more detailed account of its physiological and therapeutical action may be of interest to the readers of the *Veterinary Journal*. Nitrite of amyl is not, as Mr. Lawson described it, a "new" remedy, as it has been in use in human practice for many years, and is known to most scientific and therapeutical readers. But it is a drug that has not become of very great repute, nor has it been made officinal; although it has been pushed forward by some eminent and scientific men. It was first discovered by the French chemist, Balard (*Annales de Chimie et de Phys.*, tome xii.), in 1844, and the attention of physiologists was called to it in 1859 by Guthrie. But it was not until 1865 that Dr. Richardson, of London, introduced it to the notice of the medical profession. Since that time it has been a good deal used, and is recorded by some as being satisfactory in its action, though others write of it disparagingly. It is

a yellowish, oily, very volatile liquid, of a very penetrating, persistent, fruity odour. It is prepared by the action of nitric acid on amylic alcohol, or, as it commonly called, fusil oil.

Physiological Action.—Nitrite of amyl can be absorbed by any surface except the skin; but, on account of its volatility, it is seldom if ever used in man, except by inhalation. Owing to the physical property just referred to, its action is marvellously quick and very transient; it being absorbed and eliminated with great rapidity. When inhaled by man in small quantities, the most prominent symptoms are: a sense of great fulness and distension of the head, amounting at last to severe pain, and followed by intense flushing of the face, a deep, laboured respiration, and rapid, violent action of the heart; and it has been noticed by some observers that the cardiac disturbance is sometimes very distinctly manifest before the other symptoms, and in two cases I have known alarming prostration to supervene.

In the lower animals, the first symptoms are just the same as those described in man. After this the breathing becomes violently hurried and panting, progressive muscular weakness and diminution of reflex activity ensue; and, finally, death from failure of respiration,—sensation and consciousness being preserved almost to the last. A most striking symptom is that, a long time before death, the arterial blood becomes of almost the same colour as the venous blood.

Some elaborate experimental studies of the action of nitrite of amyl upon the circulation in animals have been made by Dr. T. Lauder Brunton (*Journal of Anatomy and Physiology*, vol. v.), by Dr. H. C. Wood (*American Journal of the Medical Sciences*, July 1871), and by Dr. Amez Droz (*Archives de Physiologie Normale et Pathologique*, Sept. 1873, p. 467). The results are so uniform, and in such harmony, that they must be accepted as proven facts. It has been noticed by all three observers that, although the pulse is very much increased in frequency, sometimes from the very beginning, the arterial pressure is diminished, and finally is reduced almost to zero, and that the fall of pressure occurs equally after section of the vagi as at other times. As the number of heart-beats in the uninjured

animal is increased rather than diminished, whilst the strength of the individual beat is not perceptibly lessened, it is evident that, at least in the early stages of the poisoning, the diminution of arterial tension is not cardiac in origin, but must be due to dilatation of the capillaries.

A most interesting phenomenon in nitrite of amyl poisoning, discovered by Dr. F. A. Hoffmann, is the appearance of sugar in the urine. He found that in the rabbit a hypodermic injection of 0·111 to 0·113 gramme of the drug is sufficient to cause Diabetes. If twice this amount of amyl salt is used, the sugar becomes very abundant in the urine, and continues to be present for from twelve to thirty hours. Consentaneously with the elimination of sugar, there is a great increase in the amount of urine.

Nitrite of amyl has a most remarkable power in reducing animal temperature, and this may be observed in fever as well as in the normal condition of the animal, and must be attributed to a direct arrest or check of tissue changes or oxidation within or without the blood. Dr. Arthur Gamgee* has made a most masterly examination of the action of the nitrite of amyl on the blood, and has thrown much light upon it. He finds that the spectrum of blood treated with the nitrite of amyl changes simultaneously with the colour. The two sharply-defined absorption bands of the oxyhæmoglobin become fainter and fainter, and entirely disappear, unless the stratum of examined blood be exceedingly thick, when faint indications of them remain apparent. At the same time new bands appear, precisely resembling those of acid hæmatin. If ammonia be added to the chocolate blood, the colour changes back to a blood-red again, and simultaneously the spectrum-lines regain their normal position. If, however, an amount of phosphoric acid precisely equivalent to the amount of ammonia added, and therefore sufficient to neutralize it, be placed in the blood, the chocolate colour re-appears, and with it the changes of the spectrum.

Therapeutics.—In veterinary practice, I am not aware of its ever having been used except in the case described by Mr. Lawson; nor can I recommend it, as it is a drug that cannot

* *Philosophical Transactions*, 1868, p. 589.

with safety be administered by the mouth, and, owing to its very volatile properties, it is not at all suitable for hypodermic injection. In human practice, the only method of administration is by inhalation: from one to three or five drops being placed on a handkerchief and held near the mouth or nose, the handkerchief being removed as soon as a sense of fulness of the head is experienced. Its principal use is for the relief of Angina Pectoris, and it is proved that it will relieve this distressing heart-pang when other remedies have failed; but in no case should it be used if there are any signs of fatty degeneration, or of very great dilatation of the heart, as its employment would be attended with danger, owing to its effect upon the heart's tissue.

Its physiological action would indicate its use in all cases of spasm of the capillaries, of the bronchial tubes, and of the muscular system generally. In Tetanus the remedy would be indicated as a spinal sedative, and as controlling excessive tissue changes, and consequent rise of temperature.

In might be of service as an antidote in strychnia poisoning, as the experiments of Dr. St. Clair Gray* on rabbits yielded very favourable results, although not carried sufficiently far to decide the point. In two rabbits, to each of which ten drops of the nitrite of amyl and half a grain of strychnia were given together subcutaneously, no decided symptoms whatever were induced; whilst one-quarter grain of the alkaloid alone frequently caused death in a single convulsion.

NOTES ON STRANGULATED HERNIA.

BY J. CAMMACK, M.R.C.V.S., BINBROKE, LINCOLNSHIRE.

As a junior practitioner deriving incalculable benefit from the cases recorded from time to time in the periodical literature of the profession, I beg to lay before the readers of the *Veterinary Journal* a brief history of the following case.

The subject was an aged roan cart-stallion, the property of a grocer of Leeds. Some time about the months of July or

* *Glasgow Medical Journal*, 1871, p. 188.

August, 1873, in company with other assistants of an eminent practitioner of that town, we were summoned to this animal, which we were assured was "wrong in his water." A cursory examination suggested Scrotal Hernia, and that strangulated.

On a closer inspection, we noted a rapid wiry pulse of 80 per minute, with the usual symptoms of Acute Enteritis; a marked inclination to lying on his back for some minutes at a time; an enormous pendulous distension of the scrotum, which was hard and tense, though manipulation of it did not appreciably increase the already frightful pain of the sufferer. On inquiry, we learned that he had had some years before one testicle removed, the other not having "come down" at that time; that within the last year or two he had become the sire of more than one foal; that he had been "ruptured" some years; that during the afternoon of that day he had drawn a load of about fifteen hundredweight for some miles; and that he had exhibited violent symptoms of Colic a few hours before our aid was requested, some popular remedies having in the meantime been employed. We were told that the tumour between the legs was of its usual size and appearance. We can compare it to nothing but a bladder or bag distended with fluid or gas, being unable to distinguish the testicle or the presence of other contents.

We attendant veterinary surgeons not having met with such a case before, and our principal being in the North, though agreeing as to its nature and urgency, wasted most valuable time in giving morphia hypodermically, and in removing the patient to the infirmary—a distance of some two miles. However, on his arrival there, we lost no time in casting and securing him on his back, with the intention of operating according to the directions of an Indian practitioner, as described in Professor Williams's "Principles and Practice of Veterinary Surgery." While thus secured, and during the administration of chloroform, he suddenly ceased to breathe. It being now quite dark, we deferred our exploration of the parts till morning, when we found a considerable increase in the size of the tumour. While removing the hind-leg of the affected side, we punctured the scrotum, and this gave rise to the forcible ejection of a blood-stained fluid—serum, doubtless—the quantity of which we could

only guess, estimating it at some quarts. After the removal of an enlarged testicle, from fifteen to twenty inches of highly inflamed and distended bowel were exposed, proving to be part of the small intestine, and containing, as did the bowels generally, much gas and a small quantity of undigested hay. For sanitary reasons, the carcase was hurried from the premises to the knacker's, who reported that, on opening it, it was discovered that the lungs were "gone rotten." This report did not reach our ears for some days, but it explained the unexpected death of our subject, and also reminded us that on one of our number endeavouring to "cough" the horse, while another manipulated the tumour as a diagnostic aid, he could not succeed in compelling it to cough, even when great force was used to compress the trachea.

Now, probably at the risk of being thought dogmatical and presumptuous, I beg to assert, though having seen but one case, and that such a disastrous one, of Strangulated Hernia, that by the early use of the aspirator, which at that time we were daily using, or even by the employment of a minute trocar and cannula, the gaseous or fluid contents of a herniated viscus could be safely and easily evacuated, and that in a very large majority of cases it would itself resume its normal situation. It is evident that in this case the strangulation of the gut did not proceed from engorgement with food, as Percivall states that it always does, but from gaseous distension, which in any Scrotal Hernia, I imagine, may happen during an ordinary Flatulent Colic, in ordinary Enteritis, or from fermentation of the contents of the enterocele, or even from inflammation of its coats, as well as from the above cause.

DISEASES INCIDENT TO WELL-BRED CATTLE: TUBERCULOSIS.*

BY G. W. BATES, V.S., ONTARIO, CANADA.

THIS is a subject which I feel incompetent to treat in an exhaustive manner, as it is worthy of the attention of those most distinguished in the profession. But since it was selected by our worthy Principal and Chairman, with a request that I should write thereon, I could but consent, at the same time knowing that I should meet with a partial if not a complete failure. Hoping, since I have done my utmost, that you will not too rigorously criticise, I will proceed to read this so-called treatise on the Diseases Peculiar to Well-bred Cattle.

In treating this subject I will consider, firstly, the diseases due to ancestral influence or breeding, and secondly, those due to rearing or the manner of feeding, management, etc., of well-bred cattle, especially shorthorns.

By the first division you are aware that if the ancestors have been subject to certain diseases, no matter how brought about, it is probable that the offspring may by inheritance be affected with the same or similar diseases. And should the ancestors have been free from disease, yet there might be generated in the progeny special maladies, due to faulty, injudicious, or even the so-called "fashionable" breeding of the present day.

By the second division of this subject, I wish you to infer that the now adopted manner of rearing well-bred cattle, particularly shorthorns, may propagate diseases which appear to be special; and that both combined—breeding and rearing—surely do generate disorders peculiar to this grand breed of cattle.

The first disease to which I will call your attention is Tuberculosis, or Tubercular Disease.

Tuberculosis may occur in cattle of any kind, and be due to various exciting causes; yet I believe that the majority of cases occurring in well-bred cattle of any breed, can be traced to hereditary tendencies, or such practices as in-and-in breeding.

That in-and-in breeding has a tendency to develop marked

* Read at a meeting of the Ontario Veterinary Medical Society.

characteristics, is a disputed point; yet, to a certainty, it has the tendency to produce weakness of constitution, showing itself by the production of light flesh, contracted chest, etc. What is still more remarkable, is the fact that the progeny of such animals with other stock are likely to be affected in the same manner. Why, then, should we be surprised, when we consider animals so bred, and even unhealthy,—being bred from on account of fancy and value,—that Tuberculosis is fast increasing, and especially among in-and-in bred animals, and the produce of animals so bred? To keep up line-breeding, form, constitution, etc., the essential conditions of a true animal are often sacrificed.

That in-and-in breeding tends to produce the disease is no two-sided question in my mind; though I believe our President stated before the American Shorthorn Breeders' Convention, last December twelve-months, that there might be much said on both sides. He did not say which view he would uphold; but I am inclined to think that he would have been on the side that I venture upon to-night.

The manner of rearing animals bred as above mentioned, has a great deal to do with the development of this disease. I believe that if the more fashionable strains of shorthorns (as I cannot speak experimentally with regard to other breeds) were pampered, as are many of the less fashionable or plainer bred, that the disease would be still more prevalent; since I am of the opinion that either extreme of feeding tends to develop the disease, the germs of which, through ancestral influence, are already, as it were, implanted in the system.

I have noticed, in visiting the herds of fashionable breeders, that the "fancies" were always kept in good breeding condition—neither too fat nor too lean; whilst I have observed, with regard to the less fashionable or plainer-bred animals, that they were either pampered or somewhat neglected, according to the purpose desired.

Tuberculosis is a blood disease, in which deposits of a caseous or calcareous character, or both, occur in different parts of the body, varying in size and structure, most frequently occurring in the organs and structures within the abdominal and thoracic cavities; though not unfrequently found affecting the salivary

glands, and sometimes the joints. When these deposits occur in small masses,—like millet seeds,—they are termed "miliary tubercles" or excrescences, are generally of a grey or yellowish colour, either hard or soft, and are mostly found in connection with the parts within the abdominal cavity. If the deposits be in patches, they are known as "infiltrated tubercles"; whilst "encysted tubercle" is applied when a mass of tubercle is surrounded by a fibrous cyst. This kind is generally found in the mediastinum and mesentery, and consists of either a calcareous or caseous matter—most frequently both. The tumours in connection with the mediastinum may become so large as to interfere more or less with respiration. When tubercular deposits of any kind occur to any extent in connection with the digestive organs or mesentery, they interfere with the assimilation of food; consequently derangement of the digestive organs takes place, and the general health of the animal begins to fail.

Tuberculosis may follow an attack of Pleuro-pneumonia.* It may be caused by the injudicious use of artificial foods, impure water, vitiated air, when animals are crowded together in imperfectly ventilated stables, etc. Climatic influences and sudden changes of temperature tend to develop the disease, as over or under feeding does, when there is a predisposing cause; yet I think it seldom happens that they prove a direct cause.

The symptoms are generally as follows: The animal becomes unthrifty, the appetite capricious, coat staring, mucous membranes paler than natural, and the circulation weakened. The beast loses condition, the skin becomes somewhat yellow and adherent to the subcutaneous tissues. A dry cough exists, which becomes more troublesome as the disease advances; though it may be present, perhaps, without any discharge from the nose. The rumen is prone to be tympanitic. There is difficulty in walking, the back is more or less arched, and a short grunt accompanies each expiration. The animal generally

* Tuberculosis succeeding Pleuro-pneumonia must be looked upon as a purely accidental circumstance, as there is no relationship or affinity between the two maladies: they are perfectly separate and distinct, and can, and do, exist entirely independent of each other.—Ed. *V. J.*

evinces pain when pressed upon the back or sides, and if a cow and in calf, she is very likely to abort. Diarrhœa soon sets in, which carries off the sufferer from within a few days to perhaps a week or two; by which time it has become a mere skeleton. The lungs are sometimes inflamed, and even Hydrothorax and Ascites may be present. Not unfrequently the salivary glands are enlarged—sometimes so much so as to interfere greatly with respiration. Lameness may also be present, due to tubercular deposits in the joints.

Professor Williams says that Tuberculosis is very often hereditary, and that he has frequently seen it commit havoc amongst many herds, in the breeding of which no attention had been paid to stoutness as well as beauty of conformation. This goes to prove the peculiarity of the disease in well-bred cattle; since lineage is looked to as much, or even more, than stoutness, beauty of conformation, etc., in the breeding of fashionable cattle.

The following are some cases that I have had the opportunity of seeing; and without exception they were in-and-in bred animals, or the offspring of animals or an animal so bred.

You, or at least many of you, had the opportunity last session of seeing the respiratory and digestive organs of a shorthorn bull which died in Illinois; and it is needless to repeat what has often been said: "Tuberculosis, and not tartar emetic, was the cause of his death." Let it suffice to say that the animal was an in-and-in bred bull—an in-and-in bred "Duke."

On the 22nd of July, 1874, a person in Missouri purchased, in Kentucky, a red shorthorn heifer, then two years old, got by an in-and-in bred "Duke" bull—first dam by an in-bred bull, second dam an in-and-in bred cow. So that if this heifer was not an in-and-in bred animal, she was equivalent to the same; being a daughter of an in-and-in bred bull, the granddaughter of an in-bred bull and also of an in-and-in bred cow. The heifer was removed to Missouri in the first week of August, and she was bred to an in-and-in bred "Rose of Sharon" bull, on the 10th day of September.

In the latter part of November, or early in December, the heifer began to show signs of dejection, yet not sufficient to

make one apprehend any serious results. Day by day she became worse and worse. She had been liberally fed; but her appetite had been somewhat capricious, and now became more so. Her coat was staring, and her hide adherent to the subcutaneous tissues. The mucous membranes became paler than natural, and the animal seemed to move with much difficulty. Her back was arched, and she sought solitude, keeping away from the rest of the herd. So she continued from bad to worse, until the 7th day of May, 1875, when she aborted, producing a red heifer calf, having been seven months and twenty-seven days pregnant. This fœtus was perfectly developed, and weighed twenty-one pounds; yet it was not as heavily coated as a fœtus should be at the proper time of parturition. The calf, though very weak and small, began to walk when about a month old.

The cow went on from bad to worse, becoming very constipated, and showing signs of tympanitis now and then. The breathing was accelerated, and a short grunt accompanied each expiration. Pressure upon the sides and spine caused her to evince pain. She soon refused her food, yet she had great thirst. Diarrhœa setting in, the animal died a lingering death on the evening of May 29th. The attack of Diarrhœa commenced about two weeks before the fatal issue, and continued until the animal succumbed. There were no external enlargements, such as of the parotid glands and the like.

Having died in the evening, the carcase was not examined until next morning, when a *post-mortem* examination showed that, to use a common phrase, the hide was grown to the body. The rumen, intestines, and peritoneum, were covered with yellow tubercles of a cheesy consistency, varying in size from a millet seed to that of a filbert; being largest on the rumen, and smallest on the peritoneum. The contents of the thoracic cavity were not so badly affected with tubercular deposits as were those of the abdominal; though I found in the mediastinum two deposits about the size of one's fist, of a calcareous nature. The lungs were somewhat hepatized and, when cut into, revealed deposits of a half-calcareous and half-caseous matter. Not being partial to *post-mortem* examinations, I made no further investigation, being satisfied that she could not have lived.

The next case that I saw, and had the opportunity of making a *post-mortem* examination of, was the calf alluded to above.

This calf did well after she was about a month old; and being a pet, scarcely, if ever, knew what it was to be hungry.

Last March, whilst at College, I received a letter stating that her parotid glands were enlarged, that they had been opened, and that pus had discharged; also mentioning that, before the glands were opened, the swelling had interfered with respiration.

When I returned to Missouri, in April last, I found her as above described—still very fat, and the respiration easy. There was no pus discharged from the parotid glands at this time, though the openings into them were "free." On manipulation, I found the glands hard; and knowing the history of the case, I had no difficulty in diagnosing it as one of Tuberculosis. I advised the owner to send the animal to the butcher; but the reply was, "If I lose any I will lose all." I then recommended the use of potassium iodide, in drachm doses, to be given internally thrice daily, and the application of poultices to the glands; also that the heifer should be turned out on pasture.

I did not trouble myself much about the case, for since I first heard of Tuberculosis I had always expected her to die from the affection.

The animal remained in this state until about the 5th of May. Having left for Illinois on the 1st, returning on the 11th I was much surprised to find her greatly emaciated, coat staring, hide-bound, back somewhat arched, breathing laboured, a short grunt accompanying each respiration, and when made to move doing so with great difficulty. The parotid glands were hard and much enlarged; the mucous membranes pale.

I now ordered the destruction of the heifer. My request not being complied with, I re-opened the parotid glands and applied poultices, and so succeeded in somewhat relieving the poor beast. She continued from bad to worse until the 25th, when she breathed her last. The appetite, tympanitic attacks, and diarrhœa, were as in the former case.

The *post-mortem* examination revealed miliary tubercular deposits throughout the course of the alimentary canal, reaching

from the mouth to the anus. They were of a cheesy consistency, and greyish colour. The rumen was covered, as also were the liver and spleen, with deposits of a semi-calcareous nature. There were no deposits on the peritoneum, though the mediastinum and mesentery contained many encysted tubercles of a semi-calcareous and semi-caseous character, varying in size from that of a hazel-nut to a goose-egg. The parotid glands presented a calcareo-caseous mass, containing a little pus. The contents of the digestive organs were whitish, with a very fœtid acid smell. The mucous membrane of the stomachs was dark, and could be easily removed from the submucous tissue.

The next case (or rather it occurred before the last) was a red bull, calved August 1st, 1873. He did very well until eleven months old, when he began to fail. Finding that he would never make an animal fit to use as a breeder, he was castrated when twenty months old, and turned on the fresh spring pasture. He did not gain much, if any, during the summer; yet he was sold in the autumn of 1875. Some time before he was disposed of he became slightly lame in his hind-limbs, and this lameness continued to increase. Some people thought it was due to Rheumatism. I did not know what it was, but am now of opinion that the lameness might have been due to tubercular deposits in the joints of the hind-legs, as I am convinced that the case was one of Tuberculosis, though not in so violent a form as the two former cases. Suffice it to say that he was an in-bred animal, and by an in-and-in bred bull.

As regards the treatment of Tuberculosis, all seem to agree that it is unsatisfactory, and generally useless. The best thing to do is to fatten as best you can, and sell to the butcher. If emaciation has begun, and the animal is then not fat enough for the butcher, it is very likely that she never will be, so the most profitable treatment is the shortest. In case of a valuable animal (if I may so term one affected with this disease), you may have to endeavour to treat; since if it be a cow, and in calf, a breeder will say "that he would be satisfied should she only live to drop the calf." I believe that, on the whole, it would prove more profitable, if not more satisfactory, if all animals affected with Tuberculosis to any extent were to die before parturition. If

one endeavours to treat, he may try the use of tonics, both vegetable and mineral; also antiseptics, stomachics, antacids, and (when there is glandular enlargement) iodide of potassium. Feed on the best of food, and attend to the general comfort of the animal. The natural food is the best; therefore, where there is protection from the scorching sun and cold rains, the animal may be turned on good grass. Should one desire to fatten the animal, he may use linseed meal, cod liver oil, etc., combined with the best of grains and grasses.

I might express an opinion with regard to the nature of this ailment—which, I feel confident, has carried off many of the highest-priced cattle of the past few years; yet I will reserve it, and merely say that I believe in-and-in breeding tends to produce Tuberculosis.

There are some other diseases to which I think shorthorns are especially very susceptible, since they are mostly due to the characteristic properties of laying on flesh, which properties shorthorns possess to a greater extent than any other breed of cattle that it has ever been my pleasure to see.

Among these diseases, I may mention lameness as one of the most common, such as sprains and the like whilst at pasture, due to the very heavy weight imposed on small bones; since it seems to be a rule, in the breeding of any strain of shorthorns, to have the greatest amount of flesh on the smallest amount of well-developed bone, thereby producing the least possible amount of offal. We also have Capped Knee (distension of the bursa of the *extensor metacarpi magnus*), caused most frequently by the animal having to lie on hard floors. I have seen Capped Knee occur more frequently in bulls than in cows; and the reasons are that the floor of a bull's stall is generally more sloping than that of a cow, which tends to make the bedding slip backwards; that at times the bull is very restless, consequently rises and lies down frequently, which tends to bruise the knees, as well as move the bedding from under him; and lastly, that bulls are kept in the stable more than are cows.

There may also be other diseases, such as those of the female, due to a too plethoric condition of the system, or to the mechanical interference of fat—among which I will mention sterility.

Lastly, though not least, we frequently meet with the loss of power of coition in the male, due to too high a condition of the body.

The proper treatment in the two latter cases—barrenness in the female, and loss of coitive power in the male—would consist in reducing the animal by exercise, and only allowing enough food to keep the body in proper condition. Afterwards the use of nerve stimulants, and even, if necessary, tonics, might be tried. Never fail, in sterility of the female, to make an examination *per vaginam*, so as to ascertain the condition of the *os uteri;* and it should ever be our aim to keep breeding animals in their most healthy and vigorous condition, since the most profitable and satisfactory returns will be thereby obtained.

TRANSVERSE PRESENTATIONS IN PARTURITION.

BY J. CAMERON, M.R.C.V.S., BERWICK-ON-TWEED.

IT was only on reading this month's (June) *Veterinary Journal*, that I became aware of there being any dispute regarding transverse presentations; and this season having had the misfortune to have a case of that sort, I thought that perhaps a short account of it might not be without interest to some members of the profession. On the 10th of April I was requested by R. Elliot, Esq., Grieve Stead, Norham-on-Tweed, to attend a mare, said to have "picked twin foals." At the same time I was asked to look at another mare, aged, and in foal, which the owner was afraid was also about to have twins, as she was such a size, and the same on both sides. However, all went well until May 13th, when she showed signs of foaling; but after a short time she became easy, and continued so until the next afternoon, when real labour pains began, and continued for some hours, the fœtal membranes being ruptured, and the fluids expelled. After waiting some time, and nothing appearing externally, nor yet being felt on examination internally, I was requested to attend as soon as possible. On my arrival, I found the mare standing quite at ease. I watched her a short time to

see how she would conduct herself; but she made no effort at foaling whatever. I then introduced my hand, and found all the parts fully dilated; and, at the whole length of my arm, felt the fœtus. I thought this would excite the labour pains, and bring the fœtus more within reach; so I waited some time, but she made little or no effort. I then examined her more carefully, and found that the fœtus was dead. The first parts of it within reach were the ribs; and at the full stretch of my arm, on the right side, I felt one stifle; and at the same distance, on the left, I discovered the point of the sternum and both elbows. I could, with great exertion, work my fingers along the inferior surface of the neck for a short distance, and along one fore-arm to very near the knee.

I had no difficulty in deciding that I had to do with a Transverse Presentation; and the fœtus was evidently on its back. I tried hard to get hold of the fore-leg below the knee, and thus be able to flex it, and perhaps do some good thereby; also, to push it round more into the right side; but all my efforts were unavailing.

The shepherd, a tall, powerful man, and the owner, also tried their utmost to alter its position; but with no success. We then walked the mare into the stackyard, killed her instantaneously, turned her on her back, and made a complete longitudinal and transverse section of the abdominal walls, completely exposing the whole of the viscera. I was very careful not to disturb the relation of parts; and now any person could see at a glance that the fœtus was lying transversely to the body of the mare, and as large at one side as the other, a little curved foreward at each side, and quite horizontal in the floor of the abdomen. I then made a long crescentic opening in the uterus from side to side, exposing the entire length of the fœtus; and as it then lay, the parts first exposed to view were the face, mane, shoulder, back, part of side, and one haunch. Neither the head nor fore-legs, nor yet the hind-legs, were bent on the body. The fœtus was as exactly transverse as it could be placed, with the back slightly arched, the hind-legs directed foreward on the right side, and the head and fore-legs also foreward, but on the left side the body being two-thirds on its back. It was a colt, very large and in

good condition; and there was every sign a day or two previously of its being alive. The mare had not performed any labour since turnip-time last year, and was sixteen days beyond her time. I think, from the abdominal proportions of the mare for such a long time previous to foaling, that it is very probable the fœtus had been in the transverse position all the time, the turning on its back taking place at or shortly prior to its death.

SUCCESSFUL TREATMENT OF UMBILICAL HERNIA IN A DOG BY LIGATURE.

BY JOHN W. HILL, M.R.C.V.S., WOLVERHAMPTON.

ON the 25th of last month, a young pug dog, fourteen weeks old, belonging to Mr. Mayou of this town, was brought for my advice regarding a navel enlargement, which I pronounced to be Hernia and most probably *intestinal;* but I could detect no communication between the protruded portion, whatever it was, and the intestine within the abdomen, nor could any manipulation reduce it. Fasting made no difference in its appearance or feel, nor yet did a full meal.

The enlargement was very much constricted at its base, and gave one the idea of an empty portion of intestine or bladder, blown and tied firmly round.

To ascertain its exact nature before resorting to any operation for its removal (after fasting the animal), I explored it with a suture needle; but neither blood, serum, or any other kind of fluid, nor yet did collapse, follow the puncture.

The owner then acting on my advice, chloroform was administered to the patient, and an incision made through the skin over the part with a lancet, for the purpose of removing the protrusion by ligature, should it prove to be omentum or obliterated intestine,—or if both, and the latter was not obliterated, to return it and close the aperture with suture.

It was found to be the former, and removed accordingly; a couple of stitches being inserted through the lips of the divided

integument, and the ends of the ligature left out. Orders were given for the patient to be watched, so that he might not interfere with the part, and to be kept quiet. On the fifth day the ligature sloughed off, and at the end of another similar period the wound was whole.

I was to-day (the 16th of July) informed by the owner that the dog was perfectly well, and that there was no mark or enlargement of any kind to be detected.

PERFORMANCE OF THE CÆSARIAN OPERATION ON A BITCH.

BY THE SAME.

THIS morning (the 15th July) between 10 and 11 o'clock, I was requested to attend an Irish setter bitch, which I was informed had yesterday afternoon given birth to one dead and three live puppies, and since 11 o'clock last night had been in severe labour with what the owner believed to be a "cross-birth."

When I arrived the bitch was lying prostrate, with hurried respiration, rapid small pulse, eyes sunk, and extremities cold. On examination *per vaginam*, I found one fore-leg of a whelp presented, and the head doubled back within the womb. The leg in question had been so tugged at that it was dislocated, and almost severed from the shoulder; the vaginal parts were extremely inflamed, being of a deep purple tint and very swollen. After first administering a little brandy and milk to my patient, I placed a noose round the presented limb and returned it within the womb, and then endeavoured to bring the head into position, but without success. As the poor creature was now so extremely exhausted—in fact, too weak to stand, and the pains were very feeble and at long intervals, I suggested —as the only chance for the mother, and also because the offspring were valuable and several yet unborn—the *Cæsarian operation*, which the owner consented to. Placing her under chloroform, on a table, I made a section in the left iliac region,

through the abdominal muscles and peritoneum, and then exposing the uterus I incised it between four and five inches, and removed eight whelps—six alive and two dead.* I closed the uterine opening with continuous silk suture, the peritoneum and abdominal muscles with continuous gut suture, and the skin with interrupted linen-thread suture.

The parts were then sponged with warm water, a little brandy and milk, with ten drops of laudanum, administered, and the patient placed on a rug over a thick bed of straw; strict quietude was ordered, and a little brandy and milk only to be given in two hours.

At six o'clock on the same evening I visited my patient, and with much regret learned she had just expired. I was informed she had not shown any symptoms of pain or uneasiness since the operation, that she had risen to her feet a few moments before she died, walked to her master, and wagged her tail.

In this case death resulted from sheer exhaustion. No support of any description had been given to the poor creature but what she chose herself to take, until I first arrived; she had been in severe labour for many hours, and only the following morning was any assistance rendered, and that, until my services were requested, had been rough, unpractical, and injurious.

I feel convinced that had the operation been performed seven or eight hours earlier, the mother's life would have been saved; or that, in the first instance, proper assistance would have procured a natural birth of the abnormally presented one. The whelps that were alive are being reared by hand, and, so far, are doing well.

* The *uterus*, internally, was intensely inflamed—the *os* being perfectly black, and the whole membrane more or less livid. One portion of intestine, just observable, was also much inflamed. My prognosis, from these appearances and the other conditions of the bitch, was unfavourable.

A CONTRIBUTION TO THE ANATOMY AND PHYSIOLOGY OF THE KERATOGENOUS MEMBRANE OF THE HORSE'S FOOT.

BY DR. MOELLER,

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THE following contribution does not lay claim to be an exhaustive or scientific treatise on the histological anatomy and the physiological processes which take place in the keratogenous membrane (*Huflederhaut*) of the horse's foot; but it will be my endeavour to discuss those subjects in such manner as shall make them of practical value in the diagnosis and treatment of morbid processes in the parts in question, as well as in surgical operations. If this end is not attained in all those points which it is desirable to overcome, and the practical estimation of the conditions about to be discussed are in certain respects only cursorily touched upon, this has been owing to a desire not to disturb the connection of things in certain other relations. This incomplete part of the work the author hopes soon to find an opportunity for publishing.

ANATOMY.

The keratogenous membrane of the horse's foot forms a part of the cutis, especially that portion which is enclosed in the hoof capsule or "horny box." The hoof constitutes the epidermis of the same. The keratogenous membrane is, therefore, subdivided into parts corresponding to the different divisions of this horny capsule in the now well-known manner—viz., Podophyllous tissue (*Fleischwand, Fleischsohle, Fleischstrahl*)—which are included in the so-called "velvety tissue" of the English, etc.

Although the keratogenous membrane corresponds in its general composition to the cutis of other portions of the organism, still it presents a number of special peculiarities, which are intimately related to its particular physiological functions.

* Translated from the *Archiv für Thierheilkunde*, Band. iii., Heft 2, 3, with the kind permission of the author, for the *Veterinary Journal*. By F. S. Billings, of Boston, U.S.A., and student at Berlin.

One of the functions attributed to it is the formation of the hoof capsule. Besides this, it also serves to provide a firm, and relatively inelastic, mode of union between the *os pedis* and the hoof. When we take both of these points into consideration, it appears self-evident that this portion of the cutis must possess a peculiar arrangement.

The simple surface of the cutis is not sufficient to meet the requirements necessary to the production of that mass of epidermis which we name hoof; we are therefore justified in assuming that an enormous multiplication of this material must take place upon the keratogenous membrane (*Hufiederhaut*, literally, "Dermis of the hoof"). It is further absolutely necessary that a loose and movable subcutis should not be present, especially at those points where the keratogenous membrane serves as a firm and unyielding bond between the *os pedis* and hoof.

In regard to this last point, I will at once mention that a subcutis is entirely absent at all those parts where the keratogenous membrane immediately covers the *os pedis*, except a portion of the coronary cushion (*bourrelet*, Fr., *Kronenwulst*, Ger.) and the superior part of the podophyllous tissue (*Fleischwand*—"fleshy wall," "laminal tissue"). Upon the remaining portion of the keratogenous membrane is to be found, in part, a very thick subcutis—the "frog-cushion" (*Strahlpolster*)—including the "pyramidal body" and "plantar cushion";* which, however, offers many variations in its anatomical construction from the subcutis in general.

Upon a level with the articulation of the first with the second phalanx, the cutis passes without any marked limits into the perioplic ring (*Fleischsaum*). The corium is thereby gradually increased in thickness, and upon its surface are observed large papillæ. These form at first only small projections upon the corium, but they gradually increase in length; so that those papillæ situated upon the inferior (lower) limits of the perioplic ring present a length of two millimetres or more.

The greater part of the perioplic ring—that is, that portion of

* In a strictly scientific sense, the term "plantar cushion" is only applicable to the hind-feet, and we should speak of *volar cushion* for the anterior extremities.

the corium which forms the *Saumband* (the superior part of the perioplic ring),—is still between the long hairs which cover the coronet of the hoof; only the inferior part of the perioplic ring—that towards the hoof—is to an extent of perhaps five millimetres hairless, and possesses the most completely developed papillæ. The inferior limits of the perioplic ring is distinguished from the coronary cushion by the so-called *Kronenfalz* (coronary groove).

The coronary cushion (*Kronenwulst*) forms a very marked thickening of the corium, which lies upon the second phalanx in the form of a half-round cushion (*Wulst*), and turns inward and downward upon the infero-lateral portions of the same, in order to form the crown of the bars (*Eckstrehentheile*).

This portion of the keratogenous membrane, the matrix for the horny capsule, and the bars, are also provided with papillæ, which offer some variations in their form, direction, and colour. Those who would study this subject further, the author refers to an article by him entitled "Entwickelungsgeschichte des Hufes," which is to be found in Gurl and Hertwig's *Magazine für Thierheilkunde*, vol. xxxviii.

With regard to the arrangement of the papillæ upon the coronary cushion, Fleming * has long since noticed that those laminæ (*Fleischblättchen*) situated next to the wall are arranged in very regularly disposed rows, which exactly correspond to the direction of the laminæ of the wall. These rows lie also in the length-direction of the fleshy laminæ. The interpapillary spaces form furrows exactly corresponding to the projections lying between the fleshy laminæ. According to Fleming, this arrangement is to be found on that part of the coronary cushion which is directed toward the podophyllous tissue (*Fleischwand*)—viz., the white zone.

This description holds good for the entire portion of the coronet which corresponds to the toe. Variations are, however, to be observed upon those portions corresponding to the sides and quarters (*Seiten und Trachtentheile*). The rows of papillæ upon these portions of the coronet are no more in direct lines, but are to be seen forming a curve towards the quarters of the

* *The Veterinarian*, 1870.

hoof. The arch formed by them corresponds to a section of a circle, which gradually becomes smaller as it approaches the quarters (and heels).

It is well to notice this circumstance, because the arrangement is not without influence in the extension of inflammatory processes, and it is of value in diagnosing these, as will be demonstrated hereafter.

The perioplic ring, as well as the coronary cushion, possess a strongly developed subcutis, which is composed of loose connective tissue, in addition to great quantities of elastic tissue, which is a direct continuation of the subcutis of the adjoining cutis. The same extends under the podophyllous tissue upon the toe, or anterior portions of the hoof, to the same distance as the insertional tendon of the *extensor digitorum communis;* upon the sides of the hoof it accompanies the podophyllous tissue for perhaps five to ten millimetres. Upon all those portions where the cartilages form the foundation for the podophyllous tissue, a modified subcutis is to be found. But of this hereafter.

I. Cutis.

A. We will now turn our attention to the arrangement of the podophyllous tissue.

Microscopically considered, this, the wall portion of the keratogenous membrane, as well as the remaining portions of the same, is distinguished from the corium of the cutis by its intensely red colour. This attains such a high degree, as to bear a striking resemblance to the colour of the muscles or flesh; therefore the names *Fleischwand, Sohle, and Strahl*—flesh-wall, sole, and frog. This colour is owing to the rich vascularization of the parts. The thickness of the podophyllous tissue decreases gradually from the coronary cushion to the inferior edges of the *os pedis.* So far as the podophyllous tissue is related to the *os pedis,* the subcutis fails; we can microscopically discover in it the following more or less distinct portions:*—

* Bracy Clark noticed several portions in this tissue in his "Hippodonomia," published in 1832. The laminal-portion podophylla (*Blattschicht*) consisted, according to him, of cartilaginous tissue, under that a layer which he called the *Reticulum processi gerum,* because from this the laminæ appeared to proceed, and were also supported by it. Bouley (*Traité du Pied du Cheval,* 1851) divides this tissue into

1. The *os pedis* is provided with many elevations and depressions, and immediately joining and combining with these, we find a stratum of fibres of elastic and connective tissue, which are very compactly interlaced one with the other. These fibres take a direction perpendicular to the surface of the *os pedis*, and extend from this towards the surface of the wall. The cellular elements of the connective tissue assume a very subordinate position in the construction of this stratum. The spindle-shaped cells are very seldom met with; so that the stratum bears a striking resemblance to the tissues of ligaments and tendons. In that portion of the stratum in immediate relation with the *os pedis*, are to be found in many places, and especially in the inferior portion of the podophyllous tissue, round or oval-shaped cells, which are generally lying in rows, and as a rule running parallel with the fibres of connective tissue. The apparently double contour which these cells offer, as well as the large nucleus, their finely granulated nature, their ends flattened when they come in contact one with the other, and their arrangement in rows, all gives to them the character of chondroblasts, and the tissue as a whole that of fibro-cartilage—connective-tissue cartilage. In general, the parallel fibres of this stratum lie closely pressed one upon another; only here and there are to be found between them cleft-like openings, which take a course perpendicular to the surface of the *os pedis* and corresponding to the course of the fibres. In a transverse section of this portion of the stratum will be seen in these cleft-like cavities several bloodvessels—which take a course from above downwards, and the contrary—corresponding to the surface of the *os pedis*. This stratum evidently represents the periosteum of the *os pedis;* therefore I would suggest for it as appropriate the name of *Stratum periostale.* (*See* Fig. 7, *b.*)

2. Above or external to this stratum, we meet another, also composed of fibrous connective tissue and elastic fibres, but which, however, presents marked variations in its arrangement from the above. The fibres of this stratum are bound together

three layers or membranes. He distinguishes between an inner—"fibrous membrane," a middle—"vascular," and the "*membrane podophylleuse.*" This description of Bouley's is appropriate, except in the histological arrangement.

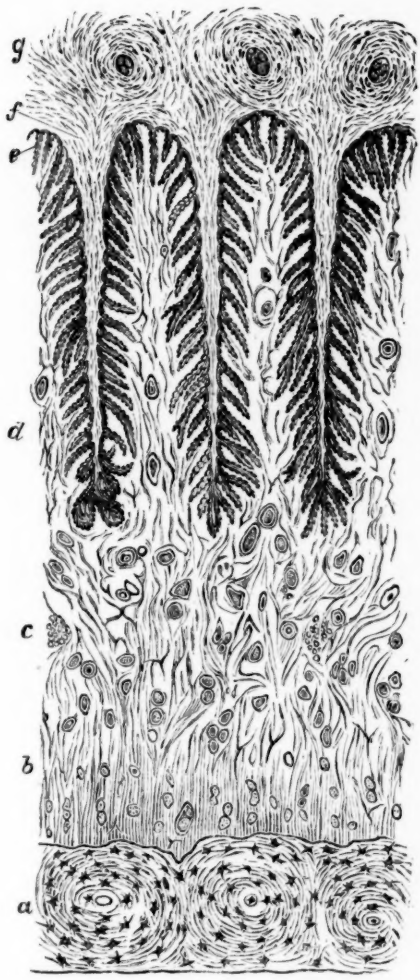

FIG 7.

Tranverse section of the hoof and vascula tissues at the anterior part of the Horse's Foot.

a. Bony tissue of the *os pedis*. *b. Stratum periostale*. *c. Stratum vasculosum*. *d. Stratum phyllodes*. *e.* Secondary horny laminæ, or *laminellæ*. *f.* Primary laminæ. *g.* Wall of the hoof with its horn-fibres.

in coarse bundles and *striæ*, which cross each other in various directions, and form a coarse network. In the meshes of this network are to be found numerous bloodvessels, which are generally of considerable size, and usually pass from the superior to the inferior portion of the foot. These vessels are generally to be seen microscopically. On account of the greatly varying course of the bundles of connective tissue, one often meets with a transverse section of the same in the microscopical preparation. The cellular elements also occupy a subordinate position in this stratum, but they are, nevertheless, much more abundantly represented than in the stratum previously described. In the loose connective tissue which forms the perivascular tissue, and unites the vessels one with another, as well as connecting them with the meshes of the network, are to be found a greater number of cellular elements. This stratum is exceedingly rich in vessels of considerable size; therefore I think it justifiable to name it the *stratum vasculosum*. (Fig. 7, *c*.)

3. Following this stratum, and external to it, we find the terminal stratum of the podophyllous tissue, or the laminæ. Upon the outer limits of the above stratum the coarse bundles of connective tissue begin to lose their continuity, and the single fibres are noticed to assume more definite directions. And as these fibres cross and re-cross each other in every direction, the above-mentioned coarse network becomes transformed into a finer tissue. In the meshes of this tissue are to be observed vessels and nerves; and here and there are noticed cellular elements —viz., round cells (*Wanderzellen*); and, finally, delicate elastic fibres in great numbers. Outside of this the connective tissue again unites and forms processes,—projections in the form of thin leaves, laminæ (*Fleischblättchen*—literally, diminutive flesh-like leaves). These laminæ are made up of the same fibrous connective tissue, elastic fibres, and a few round cells. The course of the fibres is from the base to the free border of the laminæ. The bloodvessels—at least the larger ones—are to be seen exclusively in the middle of each lamina, and ascend and descend in the direction of the same from the superior to the inferior portion of the *os pedis*.

(*To be continued.*)

Editorial.

THE ARMY VETERINARY DEPARTMENT.

Our pages have frequently testified to the great and well-founded discontent which has now for a long time prevailed among the army veterinary surgeons, and to the urgent need that exists for improving their pay, position, and prospects. No department of Her Majesty's Service has more patiently and uncomplainingly waited for years for some amelioration in its lot, than the Veterinary Department; but it now begins to discover that its virtues in this respect do not advance its claims one jot, and that years pass by without the slightest indication that its prayers are listened to. While every other department in the army has received ample consideration, and numerous warrants for their benefit have been issued since the last Veterinary Warrant of 1859, it would appear that nothing definite has yet been decided with a view to render this important branch of our land forces more popular, or to satisfy its reasonable requirements. This at least we gather from the reply of the Secretary of State for War to Captain Home's inquiry, in the House of Commons; and though some of the schemes alluded to have been for years before the authorities, yet it would seem that an indefinite period of time must still elapse before the army veterinary surgeons will be permitted to know what they are to receive, or even to hope for.

The unpopularity of army service for the members of the veterinary profession is very strikingly demonstrated by the fact, that there are now fifteen vacancies in the Department; and it is extremely probable that this number will be increased unless something is speedily done to make it more attractive. As matters now stand, no candidates who are worth having will present themselves, simply because they cannot live respectably on the pay allowed, and must spend a very large portion, if not all, of their own private means to maintain their position. If they have no means, and join the service, they will certainly quickly discover that they are in a very false and unpleasant situation. Now-a-days, the emoluments of civil practitioners are very different to what they were a few years ago, and many of them earn more in one day than their army colleagues receive as pay for a month, while their expenses are very much less. This enables them to provide much better and earlier for themselves, with a view to old age, than the army veterinary surgeon can ever hope to do, on his very meagre pension. And while the civil veterinary surgeon remains at his home, among his friends, and with every opportunity for social enjoyment and civic advancement, the army practitioner has no home, must spend many years of his life in foreign countries, and risk his health—even his existence—in unhealthy climates and on active service. Not only this, but however faithfully and zealously he may devote his life to the service of his country, in peace or in war, he knows from past experience that his services will go unrewarded and unrecognised, no matter how highly

they may be commended by those under whom he immediately acts. Honours and rewards he will see showered on those around him, and who may have no more claim than himself to recognition, while he remains a humiliating exception. Though army veterinary surgeons have served in nearly every war during this century, and have ever performed their duties with the greatest alacrity and skill, doing their utmost to ensure success, sharing the hardships and risks of their brother officers, and ready to yield their lives in the interests of the country, not one has ever been thought worthy of the least honour that can be bestowed; and while other departments have their good or distinguished service pensions, honorary retirements, etc., the veterinary surgeon has none of these, but must be content

"To lie in cold obscurity and to rot."

While all his brother officers, with whom he associates at mess and everywhere else, may be presented at Court, the army veterinary surgeon —even the head of the Veterinary Department—is denied this privilege, for some reason which has never, to our knowledge, been divulged; and this exclusion is most keenly felt by many as the greatest indignity which could be imposed upon them. Indeed, it is quite inexplicable why gentlemen who hold—and worthily hold—Her most gracious Majesty's commission as officers, are addressed as "Our trusty and well-beloved," and receive relative rank from that of lieutenant up to colonel, should be debarred from acknowledging their loyalty and devotion to the throne, and doing homage to their Queen, as other officers are permitted to do. The great improvement which has in recent years taken place in the education and status of the members of the veterinary profession—thanks to the efforts of the Royal College of Veterinary Surgeons—precludes the possibility of its best graduates joining the army, so long as the great disadvantages and disabilities under which the army veterinary surgeon at present labours exist. The army should secure the services of the most competent and promising men to which the Royal College grants its diploma; but these will not be induced to join until the pay, position, and prospects offered them are very materially improved, and the disabilities we have alluded to abolished. We earnestly hope, for the sake of the service, no less than that of those who have endured the unsatisfactory state of affairs so long and so patiently, that a fair measure of justice may be allowed the Army Veterinary Department without much longer delay. It is far from being a grateful task to ourselves to have to say anything which may deter good men from entering the army; but we deem it a duty, no less to the service than to the profession, to draw attention to the well-founded grievances which exist and the great dissatisfaction that prevails, with a view to their speedy removal. The remedy is in the hands of the Horse Guards and War Office, as well as in those of the veterinary profession.

THE SO-CALLED ENTERIC OR TYPHOID FEVER OF THE PIG.*

BY DR. KLEIN, F.R.S.

(*Continued from page* 48.)

BESIDES the intestine, the following lymphatic glands present very characteristic appearances: the mesenteric glands, especially those of the large intestine; the bronchial glands; the chain of glands along the thoracic (descending) aorta; the sternal glands; and the submaxillary lymphatic glands. The glands are much swollen, slightly firmer than normal, more or less red, in severe cases dark purple or even black, and when cut into letting a considerable amount of red fluid ooze out. At the same time it may be seen that the chief seat of red colorisation is the cortical part of the gland, from which it extends for a greater or smaller distance into the medullary part according to the greater or smaller severity of the change.

In a few cases we observed ulceration also of the organs of the throat. In one case these were symmetrical ulcerations of the mucous membrane of the gums and cheeks, of the front part of the tongue, of the hard and soft palate, and of the epiglottis. The ulcers were of a dark-grey colour; and what was most conspicuous about them was their marvellously symmetrical distribution on the two sides of the above organs. In another case we found follicular abscesses in the soft palate; they were very numerous, and the whole organ was much increased in thickness; there was an extensive ulcer in the median line of the epiglottis next the free edge. In a third case we found ulcerations of the gums and cheeks, of the tongue and hard palate; the soft palate contained numerous follicular abscesses; the epiglottis and the mucous membrane at the entrance of the larynx showed hyperæmia and œdema. The epiglottis in addition was possessed with an ulcer. It is noteworthy that these three animals in which we found affections of the throat came all from the same place. In a fourth case, produced by inoculation of matter from intestinal ulcers into the skin, we found follicular abscesses of the soft palate, the organ being much swollen.

The morbid condition of the lymphatic glands is sometimes, to naked-eye inspection, very slight indeed; besides the swelling of the gland there may be only what appears a slight hyperæmic condition; but even here the microscope reveals in all cases a very characteristic state—namely, a bursting of bloodvessels in the cortical tissue, and hæmorrhage into the lymphatic follicles and sinuses of that part, amounting in severe cases to total destruction of the adenoid tissue by blood. In severe cases the medullary sinuses, and partly also the medullary lymphatic cylinders, become filled with extravasated blood. In so far this condition is similar to what is found in Anthrax. Now, this state of the lymphatic glands is, as I said, very characteristic, and, combined with the disease of the intestine, is of paramount importance for the diagnosis.

Further important symptoms, and which have not hitherto received due attention, are affections of the lung and serous membranes. Especially the lung-affection has shown itself to be as constant as any of the preceding—even more constant than that of the skin. The state of the lung is this: the slightest degree consists in a distinct mapping out of the lobes and lobules by œdema of interlobular tissue, the lung-tissue of the corresponding parts being at the same time hyperæmic. Then these parts become hepatised and transformed into a heavy, airless, red, transparent tissue; and subsequently

smaller or larger opaque or white specks and patches appear in the red substance, and, as they increase in size, become gradually confluent. On a section it may be seen that this is due to the fact that the bronchial tubes become gradually filled up with a white, brittle, cheesy mass, progressing gradually from the finest ramifications on to the larger branches of the affected lobules and lobes. Finally the whole lobule is transformed into a discoloured, dry, hard, friable mass. The pleura of the corresponding parts is of course inflamed, being in some cases exceedingly thick, and covered with false membranes. In severer cases the greater part of one lung and portions of the other may be thus changed, and on the external surface there may exist smaller or greater ulcerations. Except in very slight cases there is generally a certain amount of pleural exudation ; and in severer cases the pleura contains a considerable quantity of a thick, offensive, yellowish or discoloured exudation. In some severer cases the pericardium is also inflamed, containing a large quantity of exudation, and its walls being much thickened by false membranes. The same is also the case with the peritoneum, this being in some cases hyperæmic in parts, or even covered with solid lymph and pus. We have had cases where there was no skin eruption, slight intestinal change, and extensive Pleuro-pneumonia, Pericarditis, and Pleuritis.

The next organ of importance is the spleen. The spleen is of dark colour and sometimes enlarged ; in some cases it appears not altered in size. In one case it was remarkably enlarged, having throughout it irregular nodular structures, from the size of a pin's head to that of a pea or even larger, whitish in appearance and of firm consistency.

The liver is in severe cases enlarged and very full of blood. The kidney is sometimes also changed : there is Hyperæmia of the pyramidal parts, and underneath the capsule, which may be easily stripped off, there are visible on the surface of the cortex hæmorrhagic round spots of the size of a pin's head, while similar spots, but scarcer, are met with in the cortex and pyramids. The severer the case the more numerous the hæmorrhagic spots.

Thus we may say that the skin, large intestine, lymphatic glands, and lungs are the organs most commonly affected, and that changes of the serous membranes, the spleen, liver, and kidney, and likewise of the organs of the throat, are of less constant occurrence.

C.—Microscopic examination.

(1.) *Skin.*—I have examined the microscopic character of those parts of the skin which show the diffuse redness, and in which the skin is at the same time thicker than in normal parts. The longer the animal lives the more swollen become these parts, as is best shown on the ear-lobes—the pendent parts of these becoming transformed into deep-red, thick, puffy masses, from the surface of which the epidermis peels in greater or smaller flakes. Not seldom are there to be seen smaller or larger roundish or irregular brownish blotches and scabs on the ear-lobes as well as groins and skin of haunch, which blotches and scabs correspond to a necrosis of the corresponding parts of corium. The microscopical characters are these : in the lighter cases, as in the earlier stages, the corium is œdematous, as is very beautifully shown in the skin of the ear-lobes near the apex by the exceeding distinctness of the lymphatic vessels and the distended interfascicular lymph-spaces which are easily traced to open into the lymphatic vessels. The blood-vessels of the corium (including arteries) are more or less distended and filled with blood or plugged with fibrin. Generally the fibrinous plug does not fill up the whole length or breadth of the vessel, nor does it present the ordinary aspect of fibrin in the bloodvessels—*i.e.*, a felt-work of fibres—but resembles a yellowish cylinder, of so dense a structure that the constituent fibrils are hardly distinguishable; other parts of the vessel contain blood. It

is clear from this that there has been existing in the vessels stasis of blood, and that this latter has undergone coagulation.

Around the vessels we find lymphoid cells; besides these we find in some cases a very great number of large coarsely-granular cells very deeply staining in hæmatoxylin, with a relatively large, clear, vesicular nucleus; the same cells will be mentioned as occurring in the intestine. The sweat glands are greatly distended, and often filled with blood more or less charged. The connective tissue of the corium contains, in a more advanced stage, in its distended interfascicular lymph-spaces, fibrinous exudations; and in still later cases the tissue becomes more or less flooded with lymph-cells starting from around the vessels and extending into the interfascicular spaces. And finally the superficial parts of the corium change into a necrotic decolorised mass, the elements of which break down and are transformed into *débris*. On the ear-lobes, and also in other parts of the skin, I have seen the epidermis becoming very much thickened when the inflammation has reached a high degree.

(2.) *Intestine.*—The mucous membrane of the large intestine shows the following changes. The capillary vessels next the surface very much distended and filled with blood, occasionally ruptured, so that blood is extravasated in the mucosa underneath the epithelium. Generally the epithelium at the mouth of Lieberkühn's crypts is detached and in the act of breaking down. The same is the case with the epithelium covering the mucosa around the mouth of the crypts; at these places the epithelium is raised from the mucosa by the presence of cavities filled with fluid, in which are suspended cells, granular matter, and blood. The epithelium of these parts is quite different from the normal condition, the cells being much shorter, and their nuclei swollen up; this leads to the cells breaking up into small elements; and finally the epithelium is altogether discharged. The mucosa is at the same time much thickened by the presence of lymph-corpuscles. The lymph spaces around Lieberkühn's crypts are distended. In the superficial parts of the mucosa, as well as in the submucosa, there are in most parts present large uninuclear cells, which are conspicuous by their coarse granulation, and staining very deeply blue in hæmatoxylin. They are present also in great numbers in the connective tissue of the lymphatic glands, and also occasionally in the skin (see above). In the mucosa of the large intestine, and in the lymphatic glands, they are seen to be of the most different shapes: spherical, oval, spindle-shaped, branched, or irregularly drawn out; and this difference in shape makes it very probable that the cells in question are amœboid. The Lieberkühn's crypts are, as a rule, filled with mucous secretion; the cells of the epithelium, especially in the outer portion of the crypts, are goblet-cells filled with mucus. In parts more affected the epithelium of the crypts is loosened, and at some places perfectly removed from the glands. In other glands the nuclei of the epithelial cells are enormously enlarged, and the cells changed into spindle-shaped or irregular bodies. In this condition we find the mucous membrane over most parts of the large intestine. In some cases there is copious hæmorrhage in the submucosa, or rather the lymphatic vessels of the submucosa are very much distended and filled with blood—derived, no doubt, from broken vessels. In that blood we find, however, hæmatoidin crystals, and besides, a peculiar arrangement of the blood-corpuscles; these are arranged around larger or smaller spherical masses, which possess a very uniform and finely granular aspect.

The muscular coat of the intestine is also much swollen, varying to œdematous condition. The fat cells of submucous tissue are mostly filled with a mucous matter.

From the above condition of distension of bloodvessels, loosening and

partial or total removal of epithelium, we have all intermediary forms to the necrosis and disintegration of the most superficial portions of the mucosa, commencing as very small circumscribed opaque spots in which the tissue is disintegrating, and rapidly increasing in breadth and depth. There is no doubt whatever that the "ulcerations" of the large intestine are merely due to a necrosis of the most superficial part of the mucosa. That part in which the necrosis started remains, as has been mentioned, discernible for a long time as a more or less well-defined speck, around which successive new layers of mucosa have more or less concentrically undergone necrosis.

The submucosa shows at the same time, next the *muscularis mucosa*, a reactive inflammation; being full of pus-corpuscles. As the necrosis spreads, the infiltration of the deeper parts with pus-cells increases. Generally the *muscularis mucosa* seems to be the boundary up to which the necrosis proceeds. In some cases, however, the corresponding part of the submucosa appears likewise involved in the process.

From and even before the first signs of necrosis of the mucosa—viz., when the epithelium begins to break down and be shed from the surface—there are found masses of micrococci, which in some ulcers occupy a great portion of the *débris*. Also ova of nematode worms I have found in the *débris* of some of the smaller ulcers.

What we have said hitherto is, I think, quite sufficient to convince any one that the "ulceration" of the mucosa of the large intestine in the pig has absolutely nothing in common with the ulceration of the intestine in Typhoid Fever of man; the latter being a process entirely limited to the lymphatic follicles of the intestine, which have previously become highly inflamed and hypertrophied.

There are several other points which must be mentioned here, both of great histological interest, and also because of their importance to a right interpretation of the naked-eye appearances of the disease. In some cases, when the ulcerations of the intestines are very numerous, the solitary lymph-follicles are seen to be enlarged and peculiarly changed. On the naked-eye inspection, we perceive in those cases, in the mucous membrane, translucent spherical nodules, from about the size of a pin's head to hemp-seed, or larger, which possess an opaque white centre. Examining them under a microscope, we find that in the submucosa there is a larger or smaller saccular cavity, lined by columnar epithelium, and filled with more or less broken-down pus-cells, mucous matter, and granular *débris;* the wall of the sac, containing a few rudiments of Lieberkühn's crypts, is surrounded by adenoid tissue; the cavity of the neck is in communication with the free surface of the intestine by a broad canal, occupied by a plug of the same substance as found in the cavity. The plug of the neck and sac generally falls out during preparation. Mr. W. A. Shoolbred, late of St. Bartholomew's Hospital, who examined for me these structures in mucous membrane less changed, found the following: There exist numerous flask-shaped invaginations of the mucosa into the submucous tissue, which flask-shaped cavities are lined by epithelium like the mucosa; the body of the flask situated in the submucosa contains Lieberkühn's crypts like the other parts of the mucosa, with the difference that they are much larger at their blind ends. The flask-shaped invaginations are, as a rule, imbedded in, or surrounded by, a lymph-follicle.

Now it is easy to understand the above condition described as translucent nodules with an opaque centre. One has only to bear in mind—that when the mucosa of the surrounding parts is much inflamed, the cavity and neck of the flask-shaped bodies become filled with pus-cells (gradually breaking down), mucous and granular *débris;* that under these conditions this cavity becomes more and more distended; and that also the Lieberkühn's follicles

in their wall, through stretching, become gradually lost. The tissue of the lymphatic follicle becomes compressed into a narrow zone as the flask-shaped body becomes more distended. Where, however, the flask-shaped bodies do not become plugged up, we find this condition,—abundant mucous secretion taking place in the Lieberkühn's crypts of the neck, enlargement of the lymphatic follicle around the body of the flask-shaped gland, and penetration of the adenoid tissue into the cavity of the gland, the progressing adenoid tissue, however, breaking down when in the cavity of the gland. At these places the epithelium of the bottom of the Lieberkühn's crypts appears to be changed into a uniformly granular mass, with numerous nuclei; the outlines of the individual epithelial cells having disappeared, these masses split into several "giant cells"—*i.e.*, huge granular masses—with a great number (five-and-twenty, or more) of small vesicular nuclei; whether these giant cells originate from the epithelium of the Lieberkühn's follicles in the manner just described or not, it is certain that at these places the lymph-follicle contains them. But also in other parts of the intestine I have seen "giant cells,"—that is to say, where the intestinal mucosa has been moderately thickened, and the surface epithelium at some places has become disintegrated, I have observed in the distended lymph-spaces around the Lieberkühn's follicles, huge cylindrical or irregular-shaped, finely and uniformly granular masses, at one peripheral place of which were imbedded very numerous small elliptical or staff-shaped or spindle-shaped nuclei, deep stained in hæmatoxylin. The corresponding crypts were much changed, the epithelium being transformed into a thin granular layer in which the nuclei might still be seen, and the cavity of the crypts being distended at some places, and containing masses of lymph-cells, which, however, were in the act of disintegration. Generally at the place where the "giant cell" was found, the wall of the crypt was seen to be broken, and in communication with the lymph-space around. Similar giant cells I have found in lymph-spaces in the deeper parts of the mucosa, even extending into the submucosa through the *muscularis mucosæ;* and finally, near the epithelium of the surface, where they presented, however, more the round aspect of "giant cells,"—*i.e.*, their nuclei more like vesicular structures, and distributed through the greater part of the centre. I find the giant cells not in all cases, but chiefly in those in which the above-named nodular structures (*i.e.*, swollen flask-shaped glands and enlarged lymph-follicles) are numerous; and generally they are to be found not far from parts containing the flask-shaped glands and lymph-follicles.

With regard to the ulcerations of the mucous membrane of the mouth, gum, hard palate, and tongue, I have to state that here also the ulceration consists in a necrosis of inflamed mucous membrane, in a breaking down of the superficial parts of the mucosa into a coloured *débris*.

There is one more point which I believe deserves careful attention. In the ulceration of the tongue just mentioned, and at a time when the superficial scab has not become removed, I have seen masses of micrococci situate chiefly in the tissue of the papillæ, but at some places reaching as far deep as the inflammation extends. That they are micrococci was proved by their forming lumps of uniform granules; these lumps stain deep purple-blue in hæmatoxylin, and are thus very conspicuous, and besides resist the action of caustic potash, with which all the rest of the tissue disappears. These heaps of micrococci in locality correspond to the papillæ, and are on the surface of the scab, but underneath the covering epithelium, some parts of this having changed into a dry, hard, discoloured mass, others containing larger or smaller vesicles filled with fluid.

In the soft palate we generally find the lymphatic follicles greatly increased, and the mucous glands much inflamed and infiltrated with pus-cells; the

number of these latter increasing, the tissue of the mucous glands becomes destroyed, and minute abscesses are formed, which discharge their contents through the duct of the mucous gland, which duct has naturally become greatly distended.

(3.) *Lymphatic glands.*—Corresponding to greater or lesser redness of the lymphatic glands, we find the cortical parts occupied by greater or smaller masses of blood, the adenoid tissue becoming at the same time destroyed. But this destruction, of course, depends on the amount of blood present. In the most acute cases, we find not only great portions of the cortical follicles transformed into an almost uniform red mass (*i.e.*, swamped with blood), but also some of the medullary cylinders saturated with it. All the lymph-sinuses are in this case also filled with blood, and hence a very striking appearance is produced in some parts; the adenoid cylinders being still intact, while the lymph-sinuses between them and the connective-tissue trabeculæ are much distended, and filled with blood. We may say we have in some parts a very good injection of the lymph-channels with blood. In the cases in which I found (as above mentioned) in the extravasated blood of the submucosa of the intestine the peculiar spherical granular lumps, I met also in the lymph-sinuses of the medulla the same spherical granular lumps. In some mesenteric glands, some of the cortical as well as medullary sinuses are filled and distended by fibrin and granular *débris*, which materials also extend on to the adjacent adenoid tissue. I have seen glands in which large portions of the adenoid tissue were entirely replaced by fibrin and granular *débris*.

In the glands from cases of somewhat longer duration, and where there has been extravasation of blood into the cortical adenoid tissue, we find the latter in general considerably hypertrophied, and the lymph-sinuses filled with cells of different sizes and aspect. In mesenteric glands of some cases, I have found enormous numbers of the giant cells filling up the lymph-sinuses of the medulla. These "giant cells" I can trace down to small granular cells, with two or three elliptical clear nuclei, looking very much like epithelial cells. A very striking appearance is produced in some parts, when the lymph-sinuses of the medulla contain giant cells of various sizes, closely arranged one at the side of the other; some of the larger ones, containing twenty, thirty, and more nuclei, seem to break down at their edges into small granular fragments. The connective-tissue trabeculæ contain ordinary lymph-cells, and in some cases a great number of the coarsely granular deeply-stained wanderers.

(4.) *Organs of Respiration.*—As has been mentioned, the epiglottis showed ulcerations only in a few cases. I have before me preparations through the epiglottis, the submucosa of the posterior surface being in a state of necrosis, and near the edge so broken down as to leave there a deep ulcer, while the mucous membrane of the anterior surface is only slightly inflamed in its submucous tissue: in this I find lymphatic vessels filled with micrococci—*i.e.*, uniformly granular masses stained conspicuously blue by hæmatoxylin, the "granules" becoming more distinct after treatment with caustic potash.

In addition to what has been said of the changes presented by the lungs, I have to mention that the lung is the seat of lobular Pneumonia,—the walls of the air-cells thickened by round cells, and the cavities of the former containing lymph-cells, changed epithelial cells, and in some instances also smaller or larger "giant cells." In the last stages, or higher degrees, the inflamed tissue becomes transformed into a necrotic disintegrating mass. In the infiltrated, firm, more or less disintegrating parts, I find great masses of micrococci filling up capillaries and veins, and also contained in lymphatics around arteries. They may be found also in minor bronchi which have become completely blocked up by cheesy, inflammatory products; but there

the masses of micrococci, conspicuous by their blue coloration in hæmatoxylin preparations, are generally present, in greater or smaller lumps, between the outer surface of the plug and the wall of the bronchus. In one case I found ova of nematode worms in the tissue of the inflamed parts, and in the larger bronchi bundles of the worms themselves.

The pleura is much swollen, and contains great numbers, continuous layers, of lumps of micrococci. The free surface of the membrane is in many parts covered with them. The exudation fluid is also charged with them, as has been mentioned above. The lymphatic vessels of the surface of the lung—the subpleural vessels—are greatly distended, and filled with fibrin; also the different trunks situated in the septa of the lobes.

With regard to other organs, as particularly the liver, spleen, and kidney, my investigations are yet too incomplete for me to make definite statements; except, as regards the liver, that its interlobular connective tissue is greatly altered, by infiltration with lymph-corpuscles, which at some parts form considerable accumulations, amounting almost to nodular new growths. Similar accumulations of lymph-cells may be observed within the acini of the liver of more advanced cases.

THE FELLOWSHIP DEGREE OF THE ROYAL COLLEGE.

It gives us unfeigned pleasure to announce the addition of five names to the list of Fellows of the Royal College of Veterinary Surgeons. Messrs. Poyser, Hunting, Hopkin, W. A. Taylor, and Briggs, have obtained this degree *by examination;* and we heartily congratulate them, not only on the satisfactory manner in which they passed the necessary tests, but also on being the first to offer themselves as candidates for this distinguished honour. We trust that many will now follow their example, and that all who are desirous of raising their profession will not hesitate in giving proof of this most worthy object by obtaining the higher degree, which should, and no doubt will, be a guarantee that its recipient is possessed of and actuated by true professional feeling. The degree of Fellow is an honourable distinction, as well as an evidence of sterling merit, and is the highest means by which the veterinary profession in this country can reward true worth and stimulate advancement—individually and collectively. Shakspeare eloquently speaks of

> "Degree, that ladder to all high designs,
> Without whose aid all enterprise is sick."

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING, HELD JUNE 18TH, 1877.

Present—Col. Sir F. Fitzwygram, President, in the chair; Professors Brown, McCall, Pritchard, and Simonds; Messrs. Batt, Blakeway, Cartledge, Cartwright, Cuthbert, Dray, Fleming, Gowing, Greaves, Harpley, Hunt Moon, W. Smith, P. Taylor, Withers, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

Letters were received from Professor Williams, Professor Walley, Mr. Jas. Collins (dated from Manchester), Mr. Balls, Mr. Cox, and Mr. Reynolds; also from Mr. Talbott (who was subpœnaed on the jury at Westminster), regretting their inability to attend the meeting.

Letters were also received from Professor McCall, Professor Walley, Mr. H. J. Cartwright, Mr. William Smith (Norwich), and Mr. Withers, returning thanks for the honour of their election as Vice-presidents.

A letter from Mr. Withers returning thanks for his re-election as Vice-president and Treasurer, and also for the unanimous vote of thanks passed by the Council for his services as treasurer.

A letter from Mr. Philipson, Market Square, Kingston-on-Thames, who stated that on inquiry he found that only the letters V.S. were written against Mr. Aspin's name, and that it was a mistake made by the young man who was collecting the names. He stated that he regretted the error, and that he would have it rectified in the next issue of the local Directory.

Election for Examiners.

On the election of the examiners for the first examination in Materia Medica and Pharmacy,

Professor SIMONDS asked whether the Council had taken into consideration the necessity of two courts of examiners sitting up to the end of next year, because provision must be made by the newly-elected Court for the examination of a considerable number of students under what might be called the old system. The new students who came in in October last, not only in the London but in the Edinburgh schools, were of course subject to the new regulations. He presumed they would have to be examined by the new Court of Examiners, and they would have three ordeals of that description to go through, while the others had only two ordeals to undergo, and that without any alterations upon the manner in which the students had hitherto been examined. He simply wished to know whether the Council understood that matter.

The PRESIDENT said he imagined the Council fully appreciated the fact that there were two distinct sets of examinations up to the time agreed upon —namely, Christmas, 1878; and out of this new Board of Examiners would be appointed a Board who should sit under the old system.

Professor SIMONDS asked whether it would not have been more in accordance with custom and compliment to the old Board of Examiners to have retained their services rather than to have elected an entirely new Court.

Mr. HUNT said that the new court would be able to carry out examinations on the old system.

The PRESIDENT said that as the old court had been called upon to resign, they had no present existence.

The election was then proceeded with.

In the course of the election for Chemistry and Toxicology,

Professor SIMONDS said that the new members of the Council did not seem to him thoroughly to apprehend this scheme. They ought to be informed that under the old system there were two examiners at the chemical table, and also two examiners at each of the other tables; but according to the new scheme there was to be one examiner and one table, and there was to be one examiner upon chemistry, one upon materia medica, and one upon botany, and so on. He held that this was wrong in principle, and he had taken the trouble some time since to give notice that he should, as early as possible, move that there should be two tables for the first examination, and that there should be two examiners at each table. By the proposed system, a responsibility was thrown upon one examiner

which certainly ought not to be thrown. There would also be a considerable amount of work, and there would be no record whatever of the subjects that the student would be examined on.

Mr. HARPLEY rose to order. The subject before the meeting was the appointment of a Board of Examiners, and not the discussion of the scheme.

Professor SIMONDS said that the new members of the Council were being led blindfolded, as they did not understand the scheme. It was right that they should know what they were voting for. The whole interest of the profession and of the students was made to bend down simply on account of the financial condition of the College; and he contended that there was no occasion for it, because the Royal College could be supported as it ought to be supported, and it would have sufficient income if a proper scheme were carried out, which would give satisfaction not only to the London school, but also to the other schools. So far as he was aware, the other schools were just as strongly opposed to the new scheme as the London schools. By electing Dr. Voelcker the Council would be shelving Dr. Taylor.

Mr. GOWING said that Dr. Taylor, in his letter, entirely declined to officiate further as an examiner.

Professor SIMONDS said that was simply because he objected to one examiner. The matter had been discussed in the Court of Examiners, and they objected to it.

Mr. GOWING said that the only means of lessening the expenditure was by having one examiner.

Professor SIMONDS said he was perfectly aware of that, but he thought it was a mistake.

Mr. GOWING wished that Professor Simonds had been on the Committee, in order that he might better have regulated the finance, and have put the Council in the position of having two examiners on the table, because he agreed with Professor Simonds that two would have been better than one.

Profossor SIMONDS wished he had been on the Committee; not only that, but he wished that all the teachers, not only of the London school, but also of the Scotch schools, had been on the Committee. If a joint committee of examiners and teachers and members of the Council had been formed, things would have been properly arranged. But the Committee had legislated for the examination of students without knowing the feeling of the examiners, and without in any way taking the experience of men who had spent their lives in examining. He knew the examiners were decidedly opposed to the scheme. Dr. Voelcker and Dr. Taylor said they were opposed to it, although they would give it a trial.

Mr. WITHERS asked how the Council were to get out of their financial difficulty?

Professor SIMONDS said that he had put forward a scheme which, he contended, would work satisfactorily, notice of which had been given three months ago. He had proposed certain changes with regard to bye-laws and regulations applicable to students, and those regulations would allow twelve students to be examined in a quarter of an hour; but the President took a strong objection to the quarter of an hour, because seven and a half minutes—dividing the time between two examiners—was insufficient to get a student's knowledge of a subject, instead of ten minutes. He had thought the matter over, and was prepared to give twenty minutes at each table. The whole of the difficulty could be got over in this way.

In answer to Mr. P. TAYLOR,

Professor SIMONDS said that the examiners objected to one examiner at each table, because it would be over-work to the examiner. Who could do

justice to any subject by taking twelve men and examining them for a quarter of an hour each?

The PRESIDENT said that this scheme had been under consideration for upwards of a year and a half, and was finally adjusted in August 1876, so that he hardly thought the Council had been led blindfold.

Professor SIMONDS said there were new members of Council since then.

The PRESIDENT said that the new members had no doubt read the report of the Council, and he would do them very great injustice if he supposed they had come to the Council uninformed. However, he would not stop the discussion. He would only point out that the Council were now electing examiners under a scheme which it had agreed upon some considerable time ago. After the Board of Examiners was elected, it was quite open to Professor Simonds to make any motion and re-arrange the tables. As to the injustice to the old examiners, no doubt a notice was sent out some time ago requesting them to resign, because it was felt that it was necessary to have a new Board, and that there would not be so many examiners required under the new system as under the old scheme: it was therefore thought better that an entirely new Board should be elected. Dr. Taylor had resigned because he did not approve of the extra work at the same pay. He was afraid that that was a necessity of the financial position of the Council.

Mr. GREAVES said that the scheme was not one that had been agreed to suddenly: it was the outcome of various discussions at the Council for several months, and he gave it his entire approval.

The election was then proceeded with.

On the election of examiners for the Second Examination,

Professor SIMONDS said he would move that, in place of having three examiners and three tables respectively for anatomy, histology, and physiology, there should be two tables and four examiners, and that histology and physiology should be examined for at the same table. It was more than one examiner could do to examine students throughout the whole night upon the anatomy of domesticated animals. Two examiners would be required for the anatomical examination, and two for physiology and histology. It was well known that histology was an essential part of physiology, and he could not see how the two were to be separated.

The PRESIDENT said he could see no objection to the scheme. It was quite a financial question, and if the Council could see their way to afford the expense of a fourth examiner, he thought it would be a desirable thing, because anatomy was a large subject.

After some discussion, in which Mr. Gowing, Mr. P. Taylor, and Mr. Wm. Smith took part, Professor BROWN seconded Professor Simonds' amendment.

Mr. HARPLEY suggested, as a way of getting out of the difficulty, that two examiners should be appointed for the anatomy of the horse and other domesticated animals, and one examiner should be appointed for physiology and histology. He had had a conversation with Professor Turner, in London, who said that there would be no difficulty for one examiner to take the subjects of physiology and histology, and that he was willing himself to do so. Thus the number of examiners would not be increased.

Professor BROWN thought that Mr. Harpley's proposition was a great improvement on the original scheme. So far as his own observation went, physiology and histology might be taken together; and if the amendment took that shape, he was quite ready to vote for it.

Professor Simonds' amendment, as altered by the suggestion of Mr. Harpley, was then put and carried unanimously.

The election was then proceeded with.

On the election of examiners for the Third or Final Examination,

Professor SIMONDS thought there was almost an absolute necessity for taking a portion of toxicology over to the third examination, with a view of making the students as practical as possible in the dispensing of medicines. It was better that students should be able to compound balls and draughts properly, and to write prescriptions; and that being a practical matter, he thought that toxicology ought to go into the third examination. This would be found to work satisfactorily, and it would not increase any expense the College might be put to. He meant that part of toxicology which belonged to the detection of poisons during the life of the animal and on *post-mortem*—not simply the chemical part, but also the recognition of symptoms. Of course, if toxicology were added, one table and two examiners would be required, instead of one table and one examiner, because there were three subjects to be examined into. He also proposed that after the words "writing of prescriptions and certificates," the words should be added, "and dispensing medicines."

After some conversation it was ultimately agreed that the words "and Pathological Toxicology" should be added after the word "Pathology," in clause 8 of the Educational Committee's report; and that the words "and in dispensing medicines" should be added after the word "prescriptions."

The election was then proceeded with.

The following are the examiners elected for the tables at the different examinations :—

FIRST EXAMINATION.

ENGLAND.	SCOTLAND.
Chemistry and Toxicology.	
Dr. A. Voelcker.	Dr. Alexr. Crum-Brown.
(Twelve students examined.)	
Materia Medica and Pharmacy.	
Professor Duguid.	Dr. Jas. Dunsmure.
Botany.	
Professor Bentley.	Dr. Alexr. Dickson.

SECOND EXAMINATION.

Physiology and Histology.	
Dr. J. Burdon Sanderson.	Professor Turner.
(Nine students examined.)	
Anatomy.	
Mr. Geo. Fleming.	Mr. Geo. Fleming.
Mr. Wm. Robertson.	Mr. Wm. Robertson.

THIRD OR FINAL EXAMINATION.

Morbid Anatomy, Pathology, and Pathological Toxicology.	
Mr. Geo. Fleming.	Mr. Geo. Fleming.
(Twelve students examined.)	
Diseases of the Horse, Veterinary Medicine, Surgery, and Therapeutics.	
Mr. M. J. Harpley.	Mr. B. Cartledge.
Mr. Wm. Robertson.	Mr. J. Harpley.

ENGLAND.	SCOTLAND.
Practical.	
Mr. M. J. Harpley.	Mr. B. Cartledge.
Mr. Wm. Robertson.	Mr. J. Harpley.
Diseases of the other Domesticated Animals, Veterinary Medicine, Surgery, and Therapeutics.	
Mr. T. W. Mayer.	Mr. Alexr. Robinson.
Mr. R. L. Hunt.	Mr. R. L. Hunt.
Practical.	
Mr. T. W. Mayer.	Mr. Alexr. Robinson.
Mr. R. L. Hunt.	Mr. R. L. Hunt.

Election of Board of Examiners for New Fellows.

A discussion arose as to whether the Board of Examiners should consist entirely of veterinary surgeons, or whether they should be elected from outside the profession.

Mr. FLEMING thought that the profession should retain as far as possible the power of examining in their own hands. He would therefore move that they should not go outside the profession to appoint the examiners.

Professor SIMONDS agreed in substance with what Mr. Fleming had said, but he could not see how examiners could be found in the profession to examine on so many varied subjects as Physiology and Comparative Anatomy, Pathology, Therapeutics, Surgery, Sanitary Science, Dietetics, and Epizoötology.

Mr. HUNT was of opinion that the professors should be the examiners.

Mr. FLEMING thought that the examiners should also be Fellows, because they would have a larger interest in retaining the integrity of the motives which led to the degree being founded.

The PRESIDENT said there was nothing in the Charter to prevent the professors being the examiners. The only provision was that no professor of the same college to which the students belonged should be the examiner. There was now nothing at all to interfere with the electing of a professor, even although he might belong to the same college as that to which the student had belonged in former days; because the clause in the Charter only referred to the diploma, and not to the new and higher degree.

Mr. PETER TAYLOR asked if it would not produce a certain amount of jealousy between the professors? If a veterinary surgeon from Edinburgh were examined by the London professors, or *vice versâ*, it would produce a certain amount of feeling if he were rejected.

Mr. CARTLEDGE thought the most practical men were the Fellows, and he did not think it justice to ask the professors to be examiners of practical men.

Mr. HUNT said there was no law against it, and the Council had a right to exercise their privilege if they chose.

The PRESIDENT said there was nothing to prevent it.

Professor PRITCHARD was doubtful whether there was any member of the medical profession who would undertake to examine on such wide subjects.

Mr. FLEMING had not the slightest doubt that in the ranks of the profession there would be found men who could examine on any one of those subjects—at least, to the extent which the profession would think necessary for the examination for the degree. It seemed to be lost sight of that a certain amount of the examination was written, which would be a great advantage to the examiners. He would move that the Board of Examiners be selected from the members of the profession.

Mr. PETER TAYLOR seconded the motion, which was carried, Professor Simonds dissenting.

The following candidates were then nominated :—

Mr. FLEMING,	proposed by	Mr. Withers,	seconded by	Mr. Cartwright.
Mr. HARPLEY	„	Mr. Taylor	„	Mr. Hunt.
Prof. BROWN	„	Mr. Batt	„	Mr. Hunt.
Prof. WILLIAMS	„	The President	„	Mr. Hunt.
Mr. COLLINS	„	The President	„	Mr. W. Smith.
Prof. MCCALL	„	Mr. Harpley	„	Mr. Fleming.
Mr. ROBERTSON, of Kelso	„	Mr. Greaves	„	Prof. McCall.
Prof. PRITCHARD	„	Mr. Harpley	„	Mr. Dray.
Prof. SIMONDS	„	Mr. Hunt	„	Mr. Dray.
Prof. WALLEY	„	Prof. Simonds	„	Mr. Dray.

Previous to the ballot being taken, Mr. TAYLOR proposed, and Mr. FLEMING seconded, "That the Examiners for Fellowships should be Fellows."

The PRESIDENT moved the previous question. In a few years' time, he said, when there would be a large number of Fellows, there might be a good reason for selecting the examiners from amongst the Fellows, but he thought it was too early to do so now. He thought they should get the best examiners they possibly could, and that at present they would act injudiciously in drawing a hard-and-fast line.

The President's motion was carried by a majority of 9 to 4.

The PRESIDENT moved that there should be four Examiners. Mr. DRAY seconded the motion, which was carried.

On the motion of the PRESIDENT, seconded by Mr. FLEMING, it was also agreed that the Board should be elected for one year.

The ballot was then proceeded with, and the following was the result :—

	Votes.		Votes.
Mr. Fleming . .	11	Prof. M'Call . .	5
Mr. Harpley . .	7	„ Brown . .	4
Prof. Williams . .	6	„ Simonds . .	3
Mr. Collins . .	6	„ Pritchard . .	2
Mr. Robertson . .	6	„ Walley . .	2

Professor Williams, Mr. Collins, and Mr. Robertson, having an equal number of votes, were again balloted for, and in the result it was found that Professor Williams had 11, Mr. Robertson 7, and Mr. Collins 5 votes.

The PRESIDENT then declared Mr. Fleming, Mr. Harpley, Professor Williams, and Mr. Robertson duly elected.

The PRESIDENT said a question arose, the New Board of Examiners having been duly elected, how the arrangements were to be carried out next July and next Christmas under the old and new systems of examinations, because the old system of examination was not exactly the same as the new. He proposed that a Committee should be appointed to adjust the new examinations, and to carry out the old examination.

Professor SIMONDS thought the simpler plan would be to request the old examiners to act, because it would be invidious to put them on one side. There were no less than 96 names down for examination in July. No doubt some of these would be disqualified from insufficient attendance, and others would be rejected at the Preliminary Examination by the Professors; but in Class B there were 28 to be examined for the diploma of the College, and in Class A, 27,—so that there were 55 names down for examination. Those were under the old system in the School. What might be the condition

with regard to Scotland he could not say, but there was a relative proportion of students to be examined under the old system, both in Glasgow and in the two Edinburgh schools. He thought the best, simplest, and most dignified way of solving the problem would be to request that the examiners should continue their services until the old system ceased, which would be in July twelve months. From the four schools he supposed there would be about 60 students to be examined by the new examiners for the First Examination. He would leave the matter entirely in the hands of the Council. He moved as an amendment, "That the old Court of Examiners be requested to officiate until such time as the old system expired."

On being put to the vote the amendment was lost, and the motion for the appointment of a committee was declared carried.

A committee was then appointed consisting of Professor Simonds, Mr. Fleming, Mr. Harpley, Mr. Collins, and Mr. Dray.

Adjourned till next day at 5 o'clock.

ADJOURNED SPECIAL MEETING OF COUNCIL, HELD JUNE 19TH, 1877.

Present—Col. Sir F. Fitzwygram, President, in the chair; Professors Brown and Simonds, Messrs. Cartwright, Dray, Greaves, Harpley, Taylor, Woodger, and the Secretary.

The SECRETARY read over the list of examiners who had been appointed on the previous day.

The PRESIDENT moved that in regard to the Second Examination the examiners be allowed twenty minutes. There would, he said, only be three examiners,—the same number as in the previous scheme,—and there would be two tables instead of three. The time would not be exceeded, and the expense would be the same. There would be nine students examined instead of twelve, which would add slightly to the expense. He did not think, considering the subjects, that twenty minutes would be too much.

Mr. DRAY seconded the motion, which was carried.

The examinations for the Fellowships were arranged to take place in London after the usual examinations.

On the motion of the PRESIDENT, seconded by Mr. P. TAYLOR, it was resolved that the amount of fee to be paid to each examiner be four guineas.

The Secretary submitted the form of papers for the new examinations in July, which was adopted and ordered to be printed.

The SECRETARY said that Mr. Gregory and Mr. Lupton had not yet transmitted their Fellowship fees, although they had been written to in April last; neither had Mr. Collins in India, who said he would instruct his agents to transmit his fee.

The Secretary was instructed to write to Messrs. Gregory and Lupton for immediate payment.

It was decided that the charge for the New Register be 1*s.* 6*d.* together with the postage.

With reference to the concluding recommendation of the report on income and expenditure, the following letter had been received since the meeting of the Council, from Mr. Loch :—

"8, Great George Street, Westminster, S.W., June 1st, 1877.

"MY DEAR SIR FREDERICK,—I had the pleasure of receiving your letter of the 25th ultimo, when I happened to be out of town. In reply to the question put in it, as to whether the Council of the College could, in addition to the charge of ten guineas for diploma, also charge one guinea for registration, I would say that the latter charge would, in my opinion, be in excess

of their power. The language of the Charter is very explicit, declaring that no fee or fees for admission as a member of the College shall at any time exceed ten guineas.

"I am, yours very truly,

"Col. Sir F. Fitzwygram." "W. A. LOCH.

Professor SIMONDS took exception to one of the recommendations of the Committee—that there should be only two examinations in the year. The July examination could not be abolished, because the students entered in October, and they had to attend three terms before they were eligible for their examination. There were two winter terms and one summer term, which brought the first examination in July. Then the second examination was in April, leaving two terms for the students to acquire anatomy and physiology, which could only be properly taught during the winter months. Then, again, there were three terms before a student was eligible for his final examination, which would be in the following April, taking the summer and the two succeeding winter terms. Therefore, April and July could not possibly be abolished. It seemed to him that the Committee had possibly in their mind the abolition of the examination in December. But what would be the result? A student who came in in October was eligible for his first examination in July; and if he failed in that examination simply upon chemistry or botany, or materia medica or pharmacy, he could not, if the Christmas examination were abolished, be again examined until the following April. He contended it was absolutely necessary for the scheme that there should be three examinations. There could be no possible loss to the College, because its income was derived from the fees paid by the students. Supposing all the men presenting themselves on one or two nights in the December examination were men who were rejected in the previous July, these being called upon to pay three guineas for re-examination, the same sum would be paid into the coffers of the College as if they were fresh men and had never been examined before. He contended that, in common justice to the students and to the interests of the Royal College of Veterinary Surgeons, the December examination ought not to be abolished.

The PRESIDENT said he was not aware of any school or college that arranged its scheme of examination in the interests of rejected students. It was quite out of the way to call upon an examining body to make its examinations in the interests of the idle student who did not choose to profit by the usual system of instruction. Secondly, it must be remembered that the College for a good many years had only had two examinations a year. The third examination was only set up about five years ago; therefore going back to the state of affairs that existed in former years could not be a very great grievance to the students or the College. Thirdly, he was enabled to state that the three Scotch schools felt that three examinations a year broke up the course of their instruction, and they would be enabled to give a more practical, thorough, and complete course of instruction if it were continued straight through the year. There was also, he believed, a strong feeling in the same direction on the part of the governors of the school which Professor Simonds represented. For these reasons, he thought the recommendation of the Committee might be safely adhered to.

Professor SIMONDS said the President was quite right as to the two examinations in bygone years; but a third examination was found to be necessary, and, if he remembered rightly, the new code of examination and all the arrangements were drawn up by Sir Frederick and himself, and Sir Frederick at the time saw the propriety and necessity of the December examination; he was astonished, therefore, that the President could not see the propriety of it now. With regard to the remark as to encouraging idle

students, it must be borne in mind that students were rejected from various other causes than that of idleness or want of knowledge. A man was often exceedingly nervous; and it very frequently happened that the best men were rejected. With regard to the interests of the Scotch schools, it ought to be borne in mind that the English schools had about as many students as the three Scotch schools put together; and having such a large number of students to deal with, it was only fair that they should try as near as they possibly could to give them full and fair justice.

Mr. HARPLEY said that one of the disadvantages the Council laboured under was that they had been unable to secure at their committees the attendance of Professor Simonds. Of course the reasons why he did not accept the invitations to attend were only known to himself; but it was a most unfortunate thing that Professor Simonds allowed these reports to be matured by committees and to be placed on the Council table, and then at the eleventh hour attempted to upset them.

Professor SIMONDS said he had his own private reasons for not attending the committees. Although he was there as a member of the Royal College of Veterinary Surgeons, still he could not forget the other position he occupied in connection with the Royal Veterinary College, nor could he forget the interests of the students that were committed to the care and keeping of the professors there.

Mr. GREAVES also regretted that Professor Simonds had not been present at the committee meetings to offer suggestions. The report had been fairly and dispassionately considered by the Committee, and he was entirely in favour of the scheme being carried out.

The PRESIDENT, in reply to Professor Simonds, said that, as far as he knew, the third examination was conceded at the wish of the Scotch schools, and rather in opposition to Professor Simonds' wishes at the time.

Professor SIMONDS said there were two examinations previous to the new scheme being concocted, and these two were in April and December; and the examination which was asked for was the July examination, in consequence of the introduction of the Summer Session. The examinations were always held in April and December, and the students who were rejected came up in December; but when the Summer Session was instituted, it was found that the scheme could not possibly work unless there was an examination in the summer, and then the summer examination was added.

After some further conversation,

Mr. HARPLEY moved, "That this recommendation of the Committee be suspended for the present."

Mr. BATT seconded the motion, which was carried.

Professor SIMONDS said he did not make any particular objection to the increase from nine to twelve students to be examined, as recommended by the Committee. He thought if twenty minutes were given, and ten students examined at a sitting instead of twelve, it would work very much better. He admitted that it was an idea of his own, in order to save money, to raise the number from nine to twelve, and to make the time fifteen minutes; but some observation fell from the President which induced him to think the matter over, and it appeared to him that what he proposed,—namely, ten students and twenty minutes,—would be far the better system. He asked that the matter be allowed to stand over.

The PRESIDENT said that it could not be allowed to stand over, as this was the kernel of the scheme.

Professor SIMONDS said it all hinged on the first examination. Professor Bentley did not see his way to examine twelve students at a quarter of an hour each on one night in botany.

The PRESIDENT said under the new scheme fifteen instead of seven and a half minutes at a joint table would be given to the examination in botany. Professor Bentley had, it was true, said that under the old course of instruction the students knew so little of the subject in which he examined, that he could get out of them all they knew in seven and a half minutes; but under the new three years' scheme of education the students would be more fully instructed, and fifteen minutes would not be too long for the examination. Under the present scheme, a year was to be given for the consideration of certain subjects—viz., botany, chemistry, and materia medica,—and no doubt the examiners would expect the students to learn a great deal during that time, and that they would be able to answer as many questions as an examiner could give in a quarter of an hour. He begged to move that the report be adopted, with the exception of the clause relating to no more than two examinations in the year, which would be held in suspense for the present.

Professor SIMONDS gave notice that on a future occasion he would call attention to the number of students that are examined, and the time devoted to each student at that examination.

Mr. GREAVES moved that the reduction for wages be £10 instead of £20.

Professor SIMONDS seconded the motion, which was carried.

Mr. P. TAYLOR seconded the motion for the adoption of the report, which was carried.

Election of Committees.

The following are the members elected to serve on the various committees during the ensuing year:—

Finance Committee.—Messrs. Broad, Balls, Harpley, Moon, Taylor, and Withers.

Publication Committee.—Professor Brown, and Messrs. Cox and Fleming.

House Committee.—Messrs. Balls, Batt, Broad, Harpley, and Withers.

College Fund.—Professor Brown, Messrs. Balls, Broad, Gowing, Harpley, Withers, and Woodger.

Parliamentary Committee.—Professors Simonds and Brown, Messrs. Broad, Cox, Fleming, Gowing, and Harpley.

Library Committee.—Messrs. Blakeway, Dray, and Harpley.

Mr. P. TAYLOR gave notice of an alteration in the Bye-laws, to the effect that there be no examination of a veterinary surgeon for the degree of Fellowship by a Preceptor.

The SECRETARY stated that he had received a letter from Mr. T. Briggs, Prestwich, Manchester, who is a candidate for Fellowship examination, enclosing for approval a copy of Certificate of General Education from the Faculty Hall of Physicians and Surgeons in Glasgow. A reply had been sent to the letter.

On the suggestion of Professor SIMONDS,

Mr. BATT proposed that a Committee be appointed to examine all such certificates for Fellowship, and to report thereon to the Council.

Mr. DRAY seconded the motion, which was carried.

The members of Committee appointed were Professor Simonds, Messrs. Batt, Cuthbert, Greaves, and Reynolds.

Regulations for the Fellowship Examination.

The following form of certificate to be produced by a candidate for the degree of Fellowship was suggested by the President:—

"We do hereby certify that Mr. *A. B.*, of *C.*, a member of the Royal

College of Veterinary Surgeons, has been engaged in the practice of his profession for five years and upwards, and is, from his general character and professional attainments, a fit and proper person to be admitted to the Fellowship of the Royal College of Veterinary Surgeons."

To be signed by three Fellows of the Royal College of Veterinary Surgeons.

The above form was agreed to, and ordered to be inserted in the Register.

The Council then adjourned.

QUARTERLY MEETING OF COUNCIL, HELD JULY 9TH, 1877.

Present—Col. Sir F. Fitzwygram, Bart., President, in the chair; Professor Williams; Messrs. Balls, Batt, Blakeway, Collins, Dray, Gowing, Greaves, Harpley, Moon, Taylor, Withers, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the last meeting were read and confirmed.

Correspondence.

The SECRETARY intimated that the following letters had been received:

Letters from Professor Walley, Messrs. Cox, Cartwright, Smith, Reynolds, and Cuthbert, regretting their inability to attend the meeting.

A letter was read from Dr. Dunsmure, dated June 27th, in reference to the number of candidates coming up for examination under the old and new systems, making a total of 66 candidates, stating that the examinations would commence on July 18th, and requesting to be furnished with the requisite examination papers.

A letter from Dr. Dunsmure, acknowledging the honour of his election as a member of the Scottish section of the Court of Examiners and Secretary.

Presentations to the Library.

The SECRETARY intimated that he had received from the Secretary of the Royal Veterinary College a copy of their Supplemental Charter.

Also, that Mr. Fleming had presented Part IX. of his "Text-book of Veterinary Obstetrics."

On the motion of Mr. DRAY, seconded by Mr. TAYLOR, a vote of thanks was awarded for the presentation.

Report of Examiners.

The SECRETARY reported that at the meeting of the Court of Examiners for the "Pass Examination," held July 2nd, eight passed and one was rejected, and on the 3rd July ten passed and two were rejected; making a total of eighteen passed and three rejected.

On the 4th July, under the old system five passed their "first examination" and one was rejected; and under the new system four passed and one was rejected. On the 5th eleven passed and one was rejected. On the 6th eight passed and four were rejected. Total, twenty-eight passed, and seven rejected.

The obituary notice was read.

The SECRETARY submitted a copy of the new Register.

The PRESIDENT moved, "That a copy be sent to each of the schools, to the Royal Agricultural Society, to the Principal Veterinary Surgeon of the Army, the Pharmaceutical Society, the Royal College of Surgeons, the Highland and Agricultural Society, the Irish Royal Agricultural Society, the Irish Inspector; and that the President have authority to send a few copies to such of the public bodies as he may think fit."

Mr. BATT seconded the motion, which was carried.

Degree of Fellow.

At a special meeting of the Court of Examiners for the examination of candidates for the degree of Fellow, in accordance with the Supplemental Charter, on July 7th, the following candidates underwent the necessary written and oral examinations, and were admitted Fellows of the Royal College of Veterinary Surgeons :—

Mr. Richd. Poyser, 6th Dragoon Guards, Colchester.
" Wm. Hunting, Down Street, London.
" Tedbar Hopkin, Strangeways, Manchester.
" Wm. Augustus Taylor, Turner Street, Manchester.
" Thomas Briggs, Prestwich and Bury, Manchester.

Finance.

The report of the Finance Committee was then read. It stated that the present liabilities amounted to £136 14*s.* 1*d.*, which the Committee recommended should be discharged. From the Treasurer's statement, it appeared that the balance at the bankers' amounted to £547 6*s.* 1*d.*

Mr. DRAY asked what was the annual average amount of fees received by each examiner.

The answer to this question was deferred till next meeting.

Mr. DRAY then asked the annual average travelling expenses of the examiners who went from London to Scotland, and from Scotland to London.

In reply, it was stated that the expenses were about £24 annually.

Mr. DRAY further inquired whether the expenses of collecting, etc., the New College Fund had been paid out of the funds of the Royal College, or out of the Building Fund.

The SECRETARY replied that the expenses had been paid by the Royal College of Veterinary Surgeons, with the exception of £15 for advertisements.

MR. DRAY thought that, considering the present state of the funds, the Building Fund ought to have borne all its own expenses.

The PRESIDENT agreed with Mr. Dray as a matter of principle, but as a matter of fact the amount paid had been very small.

Mr. DRAY then called attention to the resolution passed at the last meeting to reduce the salary of the Secretary by £10. Considering the present high price of provisions, and the long service the Secretary had rendered to the College, he thought that instead of the salary being diminished it ought to be increased. He therefore gave notice that at next meeting he would move—"That the reduction of £10 in the Secretary's salary be rescinded."

Mr. GOWING, referring to the Building Fund, asked if it would not be advisable to go outside the profession for subscriptions, and suggested that the Government should be applied to for assistance in the matter. He also brought forward a number of proposals which he deemed calculated to raise he status of, and increase the confidence of the public in, the veterinary profession.

The PRESIDENT pointed out that about a year ago advertisements had been inserted in the newspapers, calling attention to the proposed new College, and inviting subscriptions, but the result had been financially unsuccessful. He thought, however, that the Building Fund Committee might be urged to make further endeavours, and that they might apply to the Privy Council for a grant in aid of this Fund.

In reply to Mr. P. Taylor, the PRESIDENT said that the object of the Fund was simply to build a house in which the College might hold its meetings, and which might be the recognised habitation of the profession. The estimated cost of building such a house would be about £4000, and the

expense of the site would be about £2000. Towards that £1500 had already been subscribed, and if £1500 more could be raised, £3000 could be borrowed on the security of the building and site.

Mr. TAYLOR then expressed his willingness to subscribe twenty-five guineas, in the name of Peter Taylor and Son, towards the fund.

On the motion of Mr. DRAY, the report of the Finance Committee was received and adopted.

Cheques were ordered to be drawn for the current expenses.

On the motion of the PRESIDENT, the Secretary was authorised to destroy the records of examinations up to within five years.

The PRESIDENT moved, "That the time for the Easter examinations in Scotland be fixed for the week following the London examinations."

Mr. DRAY seconded the motion, which was carried.

Mr. BLAKEWAY asked if the President had yet ascertained the probable cost of an Act of Parliament for the better protection of the profession. He thought it was very opportune that some steps should be taken for the better protection of veterinary surgeons. The curriculum of study had been of late much enlarged, and the cost of obtaining a diploma had been very much increased, without sufficient protection being given to members of the profession after the diploma had been obtained. He begged to give notice that at the next quarterly meeting he would bring forward the following motion:—"That it is very desirable to obtain an Act to prevent, after this date, any person from using the title of Veterinary Surgeon who is not a member of the Royal College of Veterinary Surgeons.

The PRESIDENT said, from inquiries he had made, he found that the cost of the unopposed Act of Parliament would be about £300, but if opposed, it was impossible to say what it would cost.

After some conversation as to the advisability or otherwise of obtaining such an Act, the Council adjourned.

CENTRAL VETERINARY MEDICAL SOCIETY.

THE ordinary general meeting was held on Thursday, June 7th, at 10, Red Lion Square, at 7 p.m., J. W. Axe, Esq., Vice-president, occupying the chair.

Mr. HOWARD, referring to his observations made at the last meeting on a case of Rabies where Cardiac Hæmatomata existed, produced the preserved specimens—namely, two clots, the largest being from the right ventricle; the specimens were fibrous, producing a certain amount of fatty matter and broken-down corpuscles. He also observed that the subject had been described by D. Hope and M. Bouilland. In regard to the pathology of this disease, he stated that the endocardium was analogous to the lining of the bloodvessels, being pale-white and translucent. In endocardiac inflammation, there was an exudation of lymph on the free surface which might be washed away by a current of blood, together with fibrinous vegetation on the valves. There were different opinions as to these formations—one being, inflammation of the valves causing vegetations; another, lymph exudation from the heart itself; and another, an elimination of fibrin direct from the blood during a state known as fibrinous blood crasis. In the case of taking up an artery, the thread becomes quickly covered with fibrin; and may we not assume a possibility of fibrinous effusion in passing through the heart, the thread-like *chordæ tendinæ* being the medium, as a fixed point? If the clot be formed during life it is said to adhere to the endocardium, but if found during the agonies of death, or after it, it requires no force to detach it. In the present instance some force was required, and he inferred they had existed for some time during the animal's life. Medical men, for the most part, are agreed

that coagula occur in scrofulous subjects: now, in the dog Scrofula exists to a great extent, and although we cannot make it part of the etiology of Rabies, yet doubtless it bears a great analogy to it, and may be the cause of setting the process on foot.

The CHAIRMAN, noting Mr. Howard's remarks upon the needle-and-thread suture, said its presence accounted for the deposit as causing an inflammatory action which commenced in the vessel where the thread entered. Experiment proved that blood may be completely arrested in a vessel by setting a needle on either side and fixing them with thread, without piercing or injury at all; also by setting four needles at two different parts; and the blood will not coagulate so long as the vessel is uninjured. He thought the case hardly parallel, as to the *chordæ tendinæ* of the heart. With reference to Scrofula as a disease affecting the dog, he had been at some pains to determine the relative frequency of Scrofula, and the predisposition to it in different animals, and he thought he might say that of all our domesticated animals the dog is the *least* susceptible, having by experiment failed to produce it, but succeeded with the cat, with which it is readily induced by ingestion, or feeding with scrofulous flesh: that it does occur in the dog is certain, and he has several specimens, notably a second one affecting the brain. He then proceeded to draw attention to a case recently under his observation at the College infirmary, interesting not as a unique affection, but as showing how a disease existent in one organ may provoke dangerous and even fatal disease in other parts,—suggesting the advisability of looking beyond the organ affected, and to which the more prominent symptoms point; we should observe, by the parts presented to our notice and the microscopic sections shown of the several parts, that there were structural alterations of such a kind as to give rise to dangerous symptoms. The animal was an aged bay cart-mare, admitted April 6th, supposed by the owners to be the subject of Influenza. An important feature in this case, and one bearing on jurisprudence and the writing of certificates, was that she had been at *hard* work up to the time of admission; this needed particular attention, because, when he should describe the structural changes found, it would seem incredible that an animal could perform ordinary duties in such a state. The temperature registered 102⅜, the visible mucous membranes were injected, pulse quick and intermittent, fæces natural, and a disinclination to feed; the breathing largely abdominal, resembling that apparent in Emphysema; percussion and auscultation gave normal sounds. From the 6th to the 21st improvement continued, when she suddenly became worse, diffused swellings appearing beneath the abdomen and breast; the visible mucous membranes appearing pallid, the larger ones much engorged and mapped out in spaces,—evidently the capillary system not being overcharged. The breathing grew accelerated, the pulse being feeble and strong in turns; regurgitation and distinct sounds at the chest, the sound appearing to indicate an inability to empty itself, and having a blowing character. [These notes were furnished by the hospital surgeon to him.] The swelling greatly increased, and death ensued on the 25th. He regretted the notes were not more extensive, as they were important in connection with the results revealed after death. The body was fairly nourished, and considering the time the animal had been in the infirmary, she must have been in fair condition when admitted, seventeen days before; the subcutaneous tissue was infiltrated with serum, but the vessels not particularly engorged; the abdomen contained several quarts of straw-coloured fluid; the peritoneum opaque throughout, and on it several flocculent papillary processes, such as are seen in Chronic Peritonitis, or organized lymph. The intestinal glands were largely distended with blood, the intestines being nearly empty; the mucous coats œdematous in parts—

more especially in that part covering the cæcum, and petechial spots to a more or less extent. The mucous layer of the stomach was slightly thickened by serous infiltration, and presenting minute blood-spots. The liver was much enlarged, weighing 50 lbs., so that some idea of its size may be conceived; the superficial hepatic lymphatics were much engorged and enlarged—so much so as to be evident in their ramifications over the surface of the liver beneath the peritoneum as very considerable vessels, the larger ones about the size of a quill. Glisson's capsules were thickened and opaque in parts; the colouring of the liver variegated, with red spots circumscribed with yellow lines, like a section of nutmeg, the organ itself firm in consistence, without any extensive fatty change; it was nodulated towards the borders, due to constriction occasioned by the contraction of new fibrous tissue that had developed in it, the biliary ducts being charged with inspissated bile. The hepatic plexus of the vessels very much engorged, shown in the centre of the lobules. The kidneys much enlarged, and œdematous; weighed 7½ lbs.; sections showed the granular condition common to the affection; the urinary tubes were charged with fatty matter. The heart weighed 18 lbs., the pericardium containing a quantity of fluid. Beneath the left side of the endocardium were several blood-blotches, the cavities distended with soft coagula, as also their larger vessels; both auricles were hypertrophied and dilated; the auriculo-ventricular valves and their cords much thickened, the valves' borders having extensive vegetations, the papillary muscles being much elongated, the cords broken away in two parts, and the endocardium more or less roughened with fibrinous accretions. The valves of the left ventricle were similarly affected, the aorta being thinner than natural, while the pulmonary artery was slightly thickened. The lungs were much enlarged and œdematous, with Chronic Emphysema: they weighed 34½ lbs.; the spleen weighed 7½ lbs., and was also enlarged, and in parts had suffered from ruptured vessels, otherwise was normal. Now, with reference to these changes, he would attempt to account for their origin. We knew that Chronic Emphysema existed here, under which conditions the right ventricle becomes hypertrophied and dilated; in this instance the right auricle was also involved, and to such an extent as to render the valves incapable of performing their functions. That defect had permitted the blood, or some part of it, during the contraction of the heart, to pass back into the right auricle, inducing regurgitation. Following, therefore, the course of the veins opening into the right auricle, the anterior and posterior vena cava, we know it is an invariable accompaniment of obstructive disease to the right side of the heart to have congestion of the liver, which existed in this instance. In the dilatation of the valves there had been placed an excessive strain—a state common to the production of valvular disease, and which had caused Endocarditis. It was difficult to explain the cause of the left side being affected, the only inference being that the same obstructive disease operated in producing diseased liver and kidneys, interfering with the circulation through the aortic ramifications: that is to say, an impediment was placed in the way of the general circulation by the venous repression, and the left side was called upon to make a greater effort. Some idea of the degree of dilation could be formed, when he informed them that the circumference at the base measured 3 ft. 2 in.; from its apex to the superior part of the right auricle, 16 in.; from the same part to the superior part of the left it was 13½ in.; the coagulum from the right weighed 8 lbs., that from the left 6 lbs.; so that the heart and clots weighed 32 lbs., which, with the weight of the other organs, equalled 119¼ lbs. Judging from those stupendous figures, it was wonderful that the animal could have performed its duties. He would again revert to the care and judgment

necessary in writing certificates, which this very case brought so forcibly before his hearers; he did not think we should commit ourselves to the statement that a horse "is sound,"—but that he "appears so to us," or that "we detect no unsoundness in him." To say a horse is sound is in numerous instances to commit a blunder; he may appear so to-day, and you give an opinion to that effect, and to-morrow he may be brought in a cart, dead.

Professor AXE then showed some rough sketches made to exhibit the different states of the parts. One diagram showed the hepatic lobule in a state of health; another a dilated intralobular venule, and the hepatic cells largely pigmented round it; another showed those cells with their inner zone completely atrophied, reduced to nuclei and the *débris* of the secreting elements. On another, at the outer part of the atrophied cells, there was again a zone of pigmented cells at their circumference, with healthy cells. The kidneys had suffered from interstitial nephritis, and two diagrams showed a great difference—the tissue of one being charged with inflammatory corpuscles, the other being free from them.

Mr. HOWARD said we ought to be much obliged to the Chairman for the pains taken by him to introduce and illustrate such an interesting case; we needed an increase in our microscopic knowledge on the question of soundness: it was morally impossible to say a horse was sound, and it should not be required of us, or yet to stand an action at law; the human surgeon is not infallible, yet he is exempt from liability, inasmuch as in the army a recruit is passed by him as sound who perhaps in three or four months is taken into hospital with Consumption, and in a short time is discharged. Would Her Majesty's Government, or any sane person, sue the surgeon for that man's food and clothing? Why, therefore, should we, more than a surgeon, or a lawyer, be expected to do other than give an opinion? A lawyer does not guarantee that what he says is correct, for you may go to law afterwards and find the reverse will be established. In the case of horse examination everything is done to blind us, and our opinion is sought for an animal we have never seen before. He thought the absent Fellows had lost an intellectual treat, especially with respect to the microscopes, of which there were nine.

Some conversation ensued as to the extent of a veterinary surgeon's liability for an opinion, and the case of Mr. Day, of York, adduced in proof of the responsibility; and the fact of the North of England Defence Association being established for the very purpose of protecting its members in that respect.

A cordial vote of thanks was passed to the chairman for introducing the subject; and the ballot for Mr. William Furnivall, of Kingston-on-Thames, being taken, he was declared duly elected, and the meeting adjourned. Present, ten Fellows and three visitors.

JAMES ROWE, JUN., *Hon. Sec.*

THE LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE fifty-second quarterly meeting of this Association was held on Thursday, July 19th, at the Medical Institute, Hope Street, Mr. W. Woods, President, in the chair. There was the largest attendance of members and visitors ever seen at one of these meetings,—amongst whom the following may be enumerated:—Colonel Sir F. Fitzwygram, Bart., President of the Royal College of Veterinary Surgeons; Professors Walley and Williams; J. Stopford Taylor, M.D., Deputy Medical Officer of Health; Messrs. Geo. Fleming, F.G.S., M. J. Harpley, T. Hopkin (President of the Lancashire Association), A. B. Procter (President of the Midland Counties' Association), Peter Taylor (President of the Benevolent and Defence Association), T. Greaves, T.

Taylor, W. A. Taylor, J. B. Taylor, S. Locke, J. Lawson, A. Lawson, Paton, W. Dacre, S. L. Buckley, Geo. Darwell, Ogden, M. J. Roberts, F. Blakeway, H. J. Cartwright, J. W. Hill, H. J. Goodall, C. J. Reynolds, G. Pyatt, H. M. Stanley, Goulè, Jas. Freeman, J. Anderton, J. Gerrard, Beddard, G. Rossel, W. G. Schofield, M. E. Naylor, Roughsedge, G. Morgan, Jas. Storrar, T. Harwood, G. Cane, W. Elam, C. W. Elam, Barnes, Hutcheon, G. Heyes, E. Faulkner, Rothwall, W. Dobie, T. G. Procter, J. Welsby, Joseph Leather, W. Leather, T. Leather, W. J. T. Moore, W. W. Townson, Jones, W. A. Cartwright, etc. Numerous telegrams and letters of apology were also received from gentlemen unable to attend the meeting.

The minutes of the previous meeting having been read and confirmed, Mr. Roughsedge, St. Helens, was nominated for election.

Mr. G. FLEMING, F.G.S., of the Royal Engineers, introduced the question of the desirability of obtaining an Act of Parliament embodying a clause protective to the interests of the profession, and in doing so said there was no doubt the veterinary profession had been greatly injured by men who were not qualified by study or examination assuming the title of veterinary surgeon. Injury was also done to the public, and he thought that if by a legal process they could prevent unqualified persons assuming a designation to which they had no right, much good would be done. It was not the intention of that Association to prohibit unqualified persons from practising, but they were determined that they should practise under a different title to that of V.S.

Sir F. FITZWYGRAM, Bart., President of the Royal College of Veterinary Surgeons, said the real question was whether it was judicious to apply at the present time for an Act of the kind referred to. He saw one great obstacle in the way, and that was the examination and *quasi* diploma of the Highland and Agricultural Society. He thought they should endeavour to induce, by argument and not by pressure, the Highland and Agricultural Society to withdraw their examination; and he had little doubt that, if left to themselves, that Society would ultimately do so.

Mr. GREAVES, Manchester, also thought it would be unwise to go for an Act in the present state of feeling.

Mr P. TAYLOR, Manchester, said he was certain that if the Association applied for an Act it would be opposed by all the Scottish noblemen and members of Parliament.

Mr. G. MORGAN, Liverpool, said he thought it would be difficult to stop persons calling themselves veterinary surgeons. He was of opinion that there would be no uecessity for a penal clause if all students were examined by one body.

Mr. HARPLEY, V.S. to the Royal Horse Guards, fully endorsed the views expressed by Sir F. Fitzwygram with reference to obtaining an Act of Parliament to prevent non-qualified men from calling themselves veterinary surgeons; but he thought no active measures should be taken until we had ascertained if the Highland and Agricultural Society of Scotland were willing to do away with their system of granting degrees of proficiency in veterinary science to those students from the Edinburgh schools who presented themselves before the Examining Board.

Mr. FLEMING replied, and moved that the members of the profession who have studied in the Scotch schools be requested to petition the Highland and Agricultural Society to discontinue granting its certificates.

The motion, seconded by Mr. G. MORGAN, was carried, and a committee was appointed to carry out the objects of the resolution.

Professor WILLIAMS, of the New College, Edinburgh, read a paper on "The Teaching and Examination of Students," and a discussion followed, in which Mr. Fleming, Professor Walley (Edinburgh), and Sir F. Fitzwygram took part.

Meat Inspection.

Professor WALLEY, of the Clyde Street College, Edinburgh, also read a paper on "The Inspection of Meat: its Sanitary and Veterinary Aspects," in the course of which he referred to what meat was marketable and what unmarketable; what was harmless, and what injurious; whether the rules followed in the inspection of meat were sufficient for the purpose; and whether the inspection of meat was generally in proper hands. He pointed out the great differences in the judgment of inspectors as to what meat should be passed for consumption, and urged that the Government should lay down some authoritative rule as to what flesh should be passed and what condemned. He unhesitatingly asserted that the inspection of meat at the present time was not in proper hands. The usual plan adopted was to appoint a butcher as inspector, with a medical man as sanitary officer. The old adage "Set a thief to catch a thief" might be present to the mind of those who appoint the first class of men; and he (the Professor) need not point out the utter ignorance of such men outside the mere routine knowledge of their business; and this knowledge had been gained by ancestral descent in some instances, and by intuition in others; while such men must necessarily to some extent be biassed in favour of their fellows. As to the appointment of medical men to assist the ordinary inspectors, he presumed this was based on the assumption that, as medical men studied the ills of the body, they were the best judges of such matters; but he need not go far to disprove such assumption, and in some cases he was afraid presumption. They had only to look at the records of the police courts, and peruse the evidence given in trials of persons for exposing diseased meat, to find numerous instances of lamentable and gross ignorance on the part of medical men of the maladies to which animals are subject. The veterinary surgeon, as trained at the present day, was the proper authority in such matters, having a thorough knowledge of the habits of animals and the diseases to which they were liable.

Mr. J. W. Hill (Wolverhampton), Mr. Fleming, and others took part in a subsequent discussion,—the latter stating that until meat inspection was entrusted to veterinary surgeons, the public would always incur great risk as to the consumption of meat.

Mr. BLAKEWAY, Stourbridge, said that, as many over-fed cattle showed tubercular symptoms, if meat which was at all tuberculous was to be condemned, they would have to entirely alter their system of feeding.

The meeting closed with a vote of thanks to the readers of papers and the chairman.

Association Dinner.

The members of the Association, with about eighty friends from nearly every part of the Kingdom, banqueted at the Adelphi Hotel in the evening. Mr. W. WOODS, President, occupied the chair; and amongst those present were Colonel Sir Frederick Fitzwygram, Bart., Professors Brown, Simonds, Walley, Williams; Dr. J. S. Taylor (Deputy Medical Officer of Health); Mr. Hunt (veterinary referee to the Royal Agricultural Society), Messrs. Fleming, Harpley, R. S. Reynolds (secretary), J. Leather (Vice-president), G. Morgan (Vice-president), G. Hayes, J. Welsby, T. Procter, W. Leather, C. W. Elam, T. Leather, P. Taylor, Proctor (Coventry), Hopkin (Manchester), etc.

The usual loyal and patriotic toasts were proposed; Mr. HARPLEY responding for the "Army, Navy, and Auxiliary Forces."

Professor BROWN (London), in proposing the "Royal College of Veterinary Surgeons," said that for the last few years the profession had made strides which might not unfitly be termed gigantic. They did not possess a history

like that of the sister medical profession, but their Veterinary Institute had lately made progress and changes which were intended for the benefit of the profession.

Sir F. FITZWYGRAM, President of the Royal College, in acknowledging the toast, referred to the changes which had been made in connection with the training of their students, and said that under the present system the College hoped to send into the profession men who would be worthy of the name of veterinary surgeons, and be acceptable to their employers. The chief of the changes was the increase of the period from one and a half to nearly three years for students, an increase in the number of examinations and the number of subjects on which students were examined. He looked forward to the future of the profession hopefully. Everything was in their favour, as the value of horses and cattle was increasing, and the knowledge of sanitary science was also improving throughout the length and breadth of the land.

Mr. FLEMING, F.G.S., gave, in laudatory terms, "The Liverpool Veterinary Medical Association, and the President," which was acknowledged by Mr. WOODS. He said their Society had now attained a position of prosperity which they must all desire; and he enjoined all veterinary surgeons to join the Society, as it would enable them to get rid of old prejudices and find out better modes of treatment.

Sir. F. FITZWYGRAM proposed "The National Benevolent and Mutual Defence Association," acknowledged by Mr. P. Taylor; Mr. Blakeway gave "The Veterinary Schools," responded to by Professors Simonds, Walley, and Williams; and Mr. T. Taylor gave "The Other Veterinary Medical Associations," coupled with the names of Messrs. A. B. Procter and Hopkin.

RICHARD S. REYNOLDS, *Hon. Sec.*

ROYAL AGRICULTURAL SOCIETY.

AT the monthly meeting held on July 4th, the Hon. W. Egerton, M.P., stated that Professor Brown had presented the following report to the Committee:—

"The country is not yet officially declared free of Cattle Plague, but I am in a position to state that the disease has ceased. The prominent facts in the history of the outbreak are already before the Committee, but it may be interesting to make a statement of the localities in which the disease has occurred, and the number of animals which have been sacrificed in consequence.

"In England altogether forty-six outbreaks occurred among 1089 cattle, of which 835 were slaughtered healthy, one escaped; 253 were attacked with the disease, of which 219 were killed and thirty-four died.

"In the several counties the outbreaks were as follow:—

"In Essex six outbreaks occurred among twenty-three cattle, of which fifteen were slaughtered healthy; eight were attacked with the disease, of which seven were killed and one died.

"In Lincolnshire one outbreak occurred among twenty-four cattle, of which eighteen were slaughtered healthy; six were attacked and killed.

"In Middlesex (ex-Metropolis) there were five outbreaks among 425 cattle, of which 322 were slaughtered healthy; 103 were attacked, of which eighty-six were killed and seventeen died.

"In York (East Riding) there were seven outbreaks among sixty-five cattle, of which forty-six were slaughtered healthy; nineteen were attacked, of which seventeen were killed and two died.

"In the Metropolis there were twenty-seven outbreaks among 552 animals,

of which 434 were slaughtered healthy, one escaped; 117 were attacked, of which 103 were killed and fourteen died.

"Since the Privy Council took charge of the Metropolitan police district, in accordance with the suggestions which were made by the Royal Agricultural Society, the following outbreaks occurred:—

"The order under which the action of the local authorities in regard to Cattle Plague was taken by the Privy Council came into force on April 16th. On April 17th an outbreak occurred at Willesden among three cattle, all of which were attacked, and were immediately slaughtered and buried. On April 19th another outbreak occurred at Harlesden Green among sixty-six cattle, of which seven were attacked (of which one died, six were killed diseased), and fifty-eight were slaughtered healthy. On April 22nd an outbreak occurred in the Metropolis, in Ledbury Road, Bayswater, among thirteen animals, which were all immediately slaughtered. On April 23rd an outbreak occurred at Kensal Green among seventy-five animals, of which two were attacked (one of which died, and one was killed diseased), and the remaining seventy-three were slaughtered healthy. On the 24th of April an outbreak occurred in Kilburn Lane, Willesden, among 124 animals, of which one was attacked and was killed, and the remaining 123 were slaughtered healthy. On April 25th another outbreak occurred in Ledbury Road among thirty-eight cattle, of which three were attacked and slaughtered; the remaining thirty-five healthy animals were also slaughtered. On May 1st an outbreak occurred in the Stoke Newington district among forty-one cattle, of which ten were attacked and were immediately killed, and the remaining thirty-one were slaughtered healthy. On May 15th an outbreak occurred in Whitechapel among five animals, all of which were attacked, and were immediately slaughtered.

"It may be remarked that, shortly after the Privy Council took charge of the Metropolitan police district, there was reason to entertain some apprehension that the disease was spreading, and energetic measures were necessary for the purpose of suppressing it. The means which were adopted were, fortunately, successful.

"At the present time all the regulations which were made by various local authorities under the Cattle Plague Order of 1877 have ceased to operate, and the movement of stock in this country is free, with the single exception of the Metropolis. The Metropolitan Cattle Plague Order of 1877, under the provisions of which cattle, sheep, and goats are confined within the Metropolitan boundaries, still remains in force. The necessity for this will be apparent when it is stated that in all the premises where Cattle Plague has existed fresh stock have been or are now being introduced, and it will consequently be necessary to keep these animals under supervision for some time, in order to avoid the danger which would be incurred should an outbreak occur on previously affected premises, and any infected animals be sent to the Metropolitan Market and thence removed to various parts of the country. It is hoped that in a short time this only remaining restriction on the free movement of cattle in the country may be removed."

This report was adopted.

NEW MEMBERS OF THE PROFESSION.

At the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held July 2nd and 3rd, the following students from the Royal Veterinary College were admitted members of the profession:—

Mr. George Frederick Flavell, London.
" Harold Leeney, Brighton.
" James Edward Ainsworth, Bury, Manchester.
" John Atkinson, Burton, Westmoreland.
" Fred Spencer, Grandthorpe, Grimsby.
" Thomas Edward John Lloyd, Liverpool.
" Peter Alfred Lawler, Palmerston, Dublin.
" Arthur Hodsoll Brooks, London.
" Thomas Avis, Royal Veterinary College, London.
" William Ridgman, Liskeard, Cornwall.
" Richard Head Ringe, Borstal, Rochester.
" William Edmund Brown, Ormskirk, Lancashire.
" Alfred Joseph Sewell, London.
" John Henry Miller, Southsea, Hants.
" Sidney Hill, Chagford, Devonshire.
" Edward Montague Davy, Exeter.
" Arthur Wilberforce Mason, Cirencester.
" Joseph Mason, Bolton, Lancashire.

The following gentlemen passed their examination with VERY GREAT CREDIT :—Messrs. Harold Leeney and Alfred Joseph Sewell.

The following students of the Royal Veterinary College passed their "First Examination" at the meetings of the Court of Examiners on July 4th, 5th and 6th :—

July 4th.

Mr. George Fowler.
" James Richard Carter.
" William Alfred South.
" Henry Theakston.
Mr. Thomas Pritchard.
" James Mills.
" Frederick Leigh Slater.
" Kirtlan Smith.
Mr. James Ingham.

July 5th.

Mr. John Soulsby.
" William Hastings Farrow.
" Thomas John Keech.
" Edward Simpson Shave.
" John Davies Thomas.
Mr. William Roach.
" Ernest Edwin Batt.
" Joseph Bainbridge.
" William Frank Smith.
" James Blakeway.
Mr. William John Payton Tibbatts.

July 6th.

Mr. Titus Littler.
" Henry Shaw.
" William Henry McCaldon.
" William Robert Emery.
Mr. Herbert Hall.
" William Alston Edgar.
" Charles Edward Golledge.
" Arthur Cox.

Jurisprudence.

EXPOSING SHORN SHEEP IN COLD WEATHER.

AT Wolverhampton, on July 4th, William Evans, cattle dealer and butcher, Princes End, Tipton, was charged with cruelty to animals by exposing a number of shorn sheep during the cold weather in April last. Mr. Barrow prosecuted on behalf of the Society for the Prevention of Cruelty to Animals, and Mr. Alfred Greenway defended. The defendant had been previously

summoned, but owing to a mistake in the summons it was dismissed, and the present summons had to be issued.

Mr. Barrow briefly stated the case for the prosecution. He said that on Monday, the 16th of April last, thirty shorn sheep were despatched by the defendant's man from Cirencester to Wolverhampton. Mr. Peters, the local inspector of the Society for the Prevention of Cruelty to Animals, saw the sheep suffering from the cold. The reason that sheep were shorn by some farmers at that time of the year was that the wool is then more valuable than at any other time of the year. The farmers, who pocketed the proceeds of the shearing, were the parties mostly to blame, but the prosecution could not reach them.

William Peters, the inspector of the Cirencester Branch of the Society for the Prevention of Cruelty to Animals, was then called, and stated that on the 16th of April he saw thirty shorn sheep put into a truck at the Great Western Railway Company's station at that place. The truck was numbered 26,115. It had open sides with a covered top. The consignment ticket on the truck was "Evans to Evans, Wolverhampton." He saw the sheep leave the station at about five minutes to three o'clock. In consequence of the condition of the sheep he made a communication to the secretary of the Society, and that gentleman sent him with a telegram to the telegraph office for Captain Segrave to watch the arrival of the sheep at Wolverhampton. —Cross-examined: It was a very large market that day. Most of the sheep were shorn. There were only a few sheep in the wool. It was a bitter cold day. Many people sheared their sheep before April.

Mr. Spooner.—"But this Act of Parliament is to stop that."

Witness, in reply to Mr. Spooner, said the sheep's backs were arched, and "they shivered like a dog in a wet sack."

Mr. Spooner.—"I never heard that before."

Police-constable Moule stated that he saw the sheep in question arrive at Wolverhampton at nine o'clock on Tuesday morning. He saw them unloaded by Samuel Spruce, a servant of the defendant, and a Great Western Railway servant, and afterwards taken to the cattle market. He followed them there. Some of them looked well, and others walked lame. They were running at the nose. He subsequently saw them in the covered market at the cattle market, and called in Mr. J. W. Hill, veterinary surgeon. It was usual to convey the sheep by night to get them to market the next day.

Henry Francis, the local inspector of the Society for the Prevention of Cruelty to Animals, next stated that he met the defendant on the Thursday after the sheep in question arrived in this town. He asked him (witness) "What about the clipped sheep? My father knows nothing whatever about them. I bought them and trucked them."

Mr. J. W. Hill, M.R.C.V.S. (of the firm of Messrs. Cartwright and Hill), said that on April 17th he accompanied Police-constable Moule to the cattle market, where, at the request of Captain Segrave, and on behalf of the Cirencester Branch of the Society for the Prevention of Cruelty to Animals, he examined the thirty sheep in question. He found them all suffering more or less from the effects of cold, and the whole of them were shivering. The majority of them were running at the nose, and one was suffering from congestion of the lungs. There could be no doubt that stripping sheep of their natural clothing at an unnatural season of the year, for the sake of a trifling extra profit, was in itself—unless they were immediately slaughtered, or properly provided with warmth, which was rarely the case—an act of cruelty. The evil did not end with the offence. An amount of paralysis of the nerve extremities, due to the effect of intense cold on a suddenly exposed surface of the naked body, ensued. The bloodvessels became congested, and, as a

consequence, inflammatory fever was developed, and serious diseases of the vital organs were almost sure to follow such a condition if long maintained; besides, it was very easy to conceive that inflammatory action thus established, and especially so diffused as in the present cases, must exert a corresponding influence on the tissues of the subject, and render the flesh, in a sanitary point of view, not desirable for human food. The lameness on their removal from the truck was the result of cramp from excessive cold. They were none of them lame when he subsequently examined them in the cattle market. —Cross-examined: A great many of the sheep in question were certainly unfit for human food, especially the one suffering from congested lungs.

Professor W. Pritchard, of the Royal Veterinary College, London, was next called. He stated that the shearing of sheep in inclement weather caused a stringency of their vessels, and considerable pain, ultimately ending in running at the nose. Great pain was caused to the sheep, the surface of the skin being the most sensitive portion.

Mr. Spooner.—"The same as the human body, without clothing?"

Witness.—"Yes, sir."—Cross-examined: Thirty shorn sheep, so described, would not keep each other warm. Cold weather was undoubtedly a very improper time to shear sheep. May was the proper time to shear them.

This was the case for the prosecution.

Mr. Greenway, for the defence, here objected to the jurisdiction of the Court, and submitted that the proceedings should have been instituted in Cirencester.

Mr. Spooner over-ruled the objection, as the exposure took place in this borough.

Mr. Greenway went on to remark that the defendant went to Cirencester cattle market in the ordinary course of his business on April 16th, and seeing a large number of shorn sheep exposed for sale under the eyes of Inspector Peters, he bought the thirty in question. They were sent to the railway station and despatched to Wolverhampton without delay, everything being done for them that could be done to prevent their catching cold.

John Mullinor, a servant of the Great Western Railway Company, who received the sheep on their arrival, said he did not notice that there was anything the matter with them.

Mr. Greenway asked that under the circumstances the defendant might be dealt with leniently.

Mr. Spooner said he had no doubt about the cruelty, and the defendant was fined £2 and costs. According to the rules of the Court he could not allow the costs of the professional witnesses.

Parliamentary Intelligence.

HOUSE OF COMMONS, JULY 2.

The Army Veterinary Department.

IN answer to Captain Home, Mr. HARDY stated that no candidates had offered themselves for the fifteen vacancies now existing in the Army Veterinary Department. Many schemes had been submitted to the War Department for the purpose of making the Army Veterinary Department more popular with the veterinary profession, and were now under consideration; but until the probable cost and the results of such schemes had been inquired into, he did not think it right to make any statement as to what measures he might propose to take in reference to the matter.

JULY 16TH.

The Cattle Plague in the Metropolis.

Viscount SANDON, in reply to Colonel Kingscote, said he was sorry to say that there had been a fresh outbreak of Cattle Plague in Bethnal Green, in a shed containing ten cows. Several were affected, and the whole were slaughtered before five p.m. yesterday, after having been condemned by the Privy Council inspector. The owner did not make any report of the sickness amongst his cows, as required by the orders of the Privy Council, and the origin of the outbreak had not been traced as yet. Fortunately the orders of the Privy Council, under which no animal was allowed to leave the Metropolis alive, and also for dealing with the Cattle Plague in the Metropolis, were still in force. That afternoon the Privy Council had passed an order restricting the removal of live cattle in the Metropolis north of the Thames. Every precaution would be taken for checking the outbreak.

Sir M. H. BEACH, in answer to Mr. Pemberton, said that the Irish Privy Council had thought it desirable, whilst any risk remained, not to relax the restrictions on the importation of live cattle into Ireland, but he had no doubt they would shortly be able to do so, especially with regard to sheep and pigs.

Army Veterinary Department.

Gazette, July 3.

14TH HUSSARS.—Veterinary-Surg. of the First Class W. A. Russell, from the Army Service Corps, to be Veterinary-Surg., vice Veterinary Surg. of the First Class F. F. Marshall, who exchanges.

Gazette, July 10.

1ST DRAGOON GUARDS.—Veterinary-Surg. Seaward Longhurst, from the Royal Artillery, to be Veterinary-Surg., vice Veterinary-Surg. of the First Class L. Byrne, retired on half-pay.

Obituary.

THE Registrar of the Royal College reports the following deaths of members of the profession :—

	GRADUATED
Mr. Philip Wyatt, Sandover, Ermington, Devon . .	Dec. 21, 1859.
„ John Yates, St. Helens, Lancashire . . .	May 11, 1849.
„ Wm. Jas. Bland, Boston, Lincolnshire . . .	May 10, 1854.
„ Wm. Johnson Briggs, Kidderminster . . .	April 18, 1871.

We have also received intelligence of the demise of Mr. Smith, of Ormskirk, Lancashire, whose death is much regretted by a large circle of friends.

With much sorrow we have likewise to announce the decease, on July 12th, of Mr. Thornton Hart, Veterinary Surgeon to the 2nd Life Guards. Mr. Hart graduated in 1851, joined the army in July, 1855; was transferred to the Life Guards in June, 1863, and promoted to the grade of First Class in December of that year. Mr. Hart was greatly esteemed in his regiment, and his untimely death at the age of forty-seven years is much deplored.

The National Veterinary School at Brussels has sustained a serious loss by the death of Mr. J. B. A. Derache, one of its most distinguished teachers, and

who was also a professor at the Brussels University. Though only forty-two years of age, Professor Derache occupied a high position in Belgian scientific circles, and he was an able and accomplished veterinarian. His contributions to the *Annales de Médecine Vétérinaire* are very numerous and valuable, and he was a corresponding member of the Royal Academy of Medicine, and a member of many learned societies.

Notes and News.

TÆNIA IN BLACKBIRDS.—A correspondent to the *Lancet* writes: "A very young blackbird (this year's) died, and a subsequent examination revealed the presence of tæniæ in the intestinal canal, They were of considerable length, and their rings beautifully developed. On submitting them to Professor Cobbold, he pronounced them to be *Tænia angulata* (Rudolphi). They have never been described in this country, and have, I understand, only been observed in the thrush family. Another death has occurred in the same brood from the same cause."

HOG CHOLERA IN THE UNITED STATES.—Mr. J. R. Dodge, the Statistician of the Department of Agriculture, reports, as the result of an investigation of the losses from Cholera and other diseases of swine during the past twelve months, the destruction of 4,000,000 animals of all ages, and a money loss of more than 20,000,000 dols. One-fifth of the reported loss occurred in the State of Illinois. Next in prominence are Missouri, Iowa, and Indiana, which together lose 10,000,000 dols. Florida, Alabama, Mississippi, and Louisiana have nearly as large a percentage in loss in numbers, aggregating in value 1,500,000 dols. The losses were very small in the country bordering on the great lakes and the Pacific coast. Of the remaining districts, West Virginia comes nearest exemption, and Ohio and the Atlantic Coast States stand better than the alluvial districts of the Mississippi Valley. The apparent loss is equivalent to one-third of the sum of the exports of the pork product last year.

MARE'S MILK.—"I was recently consulted," says Dr. Muter, "by the owner of a valuable foal, with the view of seeing whether I could account for the cause of a persistent tendency to sickness and vomiting which had attacked the animal. I obtained a sample of the mother's milk, and found no signs of pus or other indications of disease, but on analysis it showed: Fat, 1·70 per cent.; sugar, 6·11 per cent.; casein, etc., 2·92 per cent.; ash, ·50 per cent.: total, 11·23 per cent. As the milk was far past the colostrum stage, I judged that the sickness must be due to a most abnormally rich secretion, especially in fat. To make the matter certain, I obtained a series of reliable samples of mares' milk, and made analyses, of which I found the following to represent the mean: Fat, ·50 per cent.; sugar, 6·74 per cent.; casein, etc., 1·67 per cent.; ash, ·41 per cent.; total, 9·32 per cent. Acting on the information thus obtained, the veterinary surgeon in charge, by regulating the diet of the mare, succeeded in bringing the milk to its normal condition, and when this was effected the foal ceased to show the symptoms complained of. The above analyses are interesting, as proving that mares' milk is normally one of the least rich in fat of the milks secreted by our domestic animals. Its analysis, under certain circumstances, is also evidently most important for assisting veterinary surgeons in the judicious treatment of the troubles incident to the infancy of horses. In judging the results of such analysis, the above figures may, in my opinion, be taken as representing the fair average composition of healthy mares' milk."

CAMELS' MILK AND FLESH.—The milk of the camel, which is poor and slightly saline, forms a part of the food of the Arabs and of their horses, and sometimes an inferior kind of butter is made from it. The flesh of that animal is so much esteemed, that when lameness, illness, or any other cause arrests its progress during a journey, it is speedily killed and divided amongst all who have any claim to a share of what is sought with the utmost avidity. —*Chesney's Expedition to the Euphrates*, p. 672.

Correspondence, etc.

MENSTRUATION IN THE LOWER ANIMALS.

To the Editor of the VETERINARY JOURNAL.

SIR,—It is an interesting and instructive fact, and well known to all who have studied the "Book of Nature," that should any of the *Crustacea* get caught by any of their natatory or ambulatory appendages, they can by a spasmodic jerk dismember themselves and thus elude their captors; and what is still more interesting and instructive, is the fact that they possess the power of reproduction. It would be well that this power were possessed by more than the *Crustacea*.

Had Mr. Macgillivray attempted to show that the anatomical and physiological reasons I adduced in support of my contention, that the cow and the mare and other female domestic animals do not menstruate, or, rather, that at their œstral periods the secretion is never so copious nor of such a kind as to give rise to the condition he described in the case which formed the subject of his first communication, I should have had no reason to complain—indeed, I would have rather felt grateful. But when he studiously avoids or evades the reasoning, and tries to make your readers believe that we are arguing about different conditions, and that he is drawing quite justifiable conclusions from data relating to a diseased state of the uterus arising from retention of the usual, and *more* or *less*—(the italics are mine)—sanguinolent œstral products, the result of genuine congenital "Atresia of the Vagina," I have a right to complain, and to say that his communication is very disingenuous and his strictures wide of the mark.

Let me state in as few words as possible, facts which tend to prove that the phenomena of menstruation and œstration, although in their object identical, are, nevertheless, dissimilar in several important particulars. The phenomenon of menstruation is not a separation of blood, or blood and mucus, simply from the body by the uterus; but the molecular removal of a tissue which has become useless, inasmuch as impregnation has failed, and the hæmorrhage is the result of the destructive process by which the useless, material is removed from the body. It is the terminal change of a cycle beginning with the development of a *decidua menstrualis* and ending with its destruction. It is not a process of activity, but of death. To this process Dr. Aveling has applied the term of *denidation*, as it is the carrying away of a *nidus* prepared for the reception of an impregnated ovum, while the process of growth by which the decidua is formed during every intermenstrual interval is called *nidation*. Nor does he believe, as is generally understood, that menstruation is the result of congestion, or that it is the result of erection, as maintained by Rouget, and for the following reasons:—Firstly, organs capable of erection are usually flaccid and lax; when erect, hard and firm. The uterus, on the contrary, is usually hard and firm, but during menstruation it is softer than usual. Secondly, in the most markedly

erectile organs of the body, erection does not give rise to hæmorrhage; and, Thirdly, the sensations which accompany menstruation, even in the mildest form, are of a totally different character to those which attend erection or œstration. The phenomenon of œstration is of a congestive kind, and is entirely the result of ovarian influence. This is proved conclusively by the fact that spayed animals—if the operation be properly performed—never come "in heat,"—and this is, indeed, the principal object of the operation. Further, it is only at this period that fruitful (indeed, any) intercourse can take place.

Since ovariotomy has become an operation of frequent occurrence, it has been found that menstruation, or rather a monthly discharge of blood, has frequently taken place after both ovaries have been removed. These facts, I think, prove very conclusively the dissimilarity of the phenomena, and the difference of the sources of the menstrual fluid and the œstral secretion. The former can only be regarded as a secretion in so far as it contains mucus; and it is something more than a simple hæmorrhage. The source of the menstrual fluid is the whole of the genital tract—from the orifice of the vagina to the infundibulum of the Fallopian tubes; the greater portion of this surface, however, contributes mucus and epithelium only, while the blood, together with the other elements which give the flow its character, and without which it would not be considered menstrual, is supplied by the body of the uterus. Whereas the latter, or œstral secretion, with its microscopic quantity of blood, is supplied entirely by the ovarian rupture, and the mucous secretion from the glands of the vulva; and is completely dried up when the ovaries are removed. This dissimilarity in the respective fluids and the attendant phenomena, is explained by the anatomical differences pointed out by Rouget; but the physiological deductions he draws from them are entirely different. If erection of the body of the uterus was necessary to the phenomenon of menstruation and completion of the act of copulation in either of the species, it would be most necessary in the lower animals; and it is just in them that the erectile structures are absent, or are very sparingly developed.

Here, however, I must leave the subject for the present. In conclusion, I may say that I am too well aware that such cases as Mr. Macgillivray recorded are not uncommon; indeed, they are often met with, and bad cases they too often prove. Of such a nature was the one recorded by Mr. Gray in the June *Journal*, and commented on by Professor Duguid; but I deny that they owe their origin to the cause Mr. Macgillivray ascribes them to. They almost always occur after the first connection with the male; and the fact that they preponderate in white or grey animals points very strongly to some peculiar idiosyncrasy in the constitution, the nature of which we are not able, at present, to determine.

Further, I may say that I shall regret exceedingly if my treatment of this subject should have the effect predicted by Mr. Macgillivray, even upon Mr. Macgillivray himself; for few, I presume, have been more benefited, or have valued more highly his contributions, than myself, and I trust we shall have many more from his fertile pen.

Our thoughts cannot all run in the same groove—indeed, it is undesirable that they should; and I used to think your journal existed for the expression of our opinions, and their discussion by those who did or did not agree with them. If I have over-stepped the boundary of fair criticism, you, sir, are the judge, and you are at perfect liberty to consign this to your waste-basket, or commit it to your columns, and in either case you will oblige

Your obedient servant,

JOHN GERRARD, M.R.C.V.S.

Market Deeping.

HORSE DEALERS AND VETERINARY SURGEONS.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the *Field* of this day, July 14th, I observe an advertisement of "The Ashurst Lodge Company, dealers in horses, Langton, Tunbridge Wells," of which the following is the concluding paragraph :—"N.B. The Ashurst Lodge Company reserve to themselves the right to refuse examination by certain veterinary surgeons."

I confess that this is the first time I have ever heard of the Company ; but in the interest of the profession, would it not be very desirable to have, if not the names of the veterinary surgeons in question, at least the reasons given for refusing to allow them to examine horses? The announcement is so unusual and extraordinary that some explanation is very necessary. Can the local veterinary surgeons throw any light on the subject ?

Your obedient servant,

J. LAMBERT, F.R.C.V.S., 17th Lancers.

THE FELLOWSHIP DEGREE.

To the Editor of the VETERINARY JOURNAL.

SIR,—Permit me to make some remarks on the conduct of our President at the second special meeting of the Council, held on the 29th day of May, 1877, and reported in this month's issue of the *Journal*. There I read that the President offered to allow Captain Russell to come up for his examination as a Fellow, without passing the prescribed examination by the College of Preceptors. This gentleman graduated, I ascertain from the Register, in 1872. Thanks to Mr. Reynolds, his intention was thus far frustrated, and he had to give the usual three months' notice to alter Bye-law 50.

At our annual meeting, held on the 7th of May, 1877, I asked the President a question relative to the aforesaid bye-law, and was told that no matter how well a man had been educated—unless he was or had been a professor at a school affiliated with the Royal College of Veterinary Surgeons, or could produce a certificate of graduation in arts from a University—he MUST PASS an examination by the College of Preceptors. Why, I would ask, should the President be so anxious to override this Bye-law 50 for the said Captain Russell at a minute's notice? My own opinion is that it was "*Favouritism*"—an act I scarce thought he would condescend to, and simply because they both are ex-army men, and he wanted to oblige Russell above any other man in the profession, at any risk or cost. It will be advisable for the President in future to duly consider and well weigh the effect of his actions on the minds of his brother professionals, before he wishes to accommodate a friend by breaking a bye-law which he himself has assisted in making binding on all candidates for the Fellowship Degree. I can but add, with regret, that I am disgusted with this instance of "*Favouritism*," which I sincerely trust will be a caution to any gentleman who may in future fill the responsible office of President, whose actions should be "above suspicion."

I have just seen a brother professional who has had twenty-three years' service in India, and was formerly a pupil of Mr. Wm. Field, of Oxford Street, who knew Russell intimately out in India, and he does not give a very glowing description of the ex-army man's abilities ; and I will guarantee that the two examinations I passed at the London University, preparatory to the final one for an M.D. degree, when studying for the medical profession, were as stringent as Russell had to submit to for his commission in Her

Majesty's army. Your kind insertion of the above in your valuable journal will greatly oblige, Mr. Editor,

Yours truly,

Kingston, *July 6th*, 1877. WM. FURNIVALL.

[We are very sorry Mr. Furnivall should write so strongly, and make such serious reflections on the President of the Royal College and Captain Russell. We are certain that the charge of "*Favouritism*" is absolutely without foundation, and have reason to know that the two gentlemen are personally entirely unknown to each other. The President acted in the instance alluded to, as he has ever done, impartially, and with a full knowledge of the circumstances. Officers, before they can hold a commission in the army, must pass an examination which, so far as our experience leads us to believe, is so severe as to be almost equivalent to graduation in Arts. The Bye-law referred to was intended to make sure that the candidate for Fellowship had received the education of an ordinary English gentlemen, and this is the standard required for the line officer. It was, however, pointed out by Mr. Reynolds that the Bye-law was more stringent, and that Captain Russell was not admissible; notice was therefore given to amend this Bye-law. In drafting new Bye-laws, it is difficult to avoid mistakes and omissions. In Acts of Parliament, drawn up by men of great experience, it is generally necessary to amend them, even repeatedly, in succeeding sessions. This was foreseen in drafting these Bye-laws, and the type was kept standing; but so carefully was the drafting done, that the mistake above alluded is the only one which has yet been brought to notice.]

CARNIVOROUS COWS.

To the Editor of the VETERINARY JOURNAL.

SIR,—I send you this account of a case, thinking that if you consider it of sufficient interest to members of the profession, you might like to insert it in the *Veterinary Journal.*

On the evening of June 10th, the cowman of a gentleman living near here called to request Mr. Anderson, M.R.C.V.S., to go out with him, as one of the cows was expelling her "puddings" *per rectum.* In the absence of Mr. Anderson I attended the cow, and found her standing in the byre, with four twisted cord-like appendages hanging from her rectum to the length of about eighteen inches, covered with fæces, and cold to the touch. I saw directly that they were intestines, but was naturally puzzled that there was no relaxation of the sphincter ani, or any protrusion of the rectum; also that the intestines exposed to view seemed to have become split up into four distinct cords. I inserted my hand *per rectum*, with the object of making an exploration of that region; and after having followed up these cords nearly as far as my arm could reach, I suddenly found they terminated in free ends, on which I withdrew my arm with the cords, which came away with great ease.

I then washed the intestines (for that they were intestines I never for a moment doubted), and after unravelling them, proceeded to make a careful examination, and found that they were the small intestines of some herbivora, probably a sheep; that they contained a small amount of finely powdered grass, and that they were about ten feet in length.

On making inquiries as to how the cow could have got at them, I found that the offal of the sheep killed for consumption in the house was always thrown into the pig-stye; but most probably some dog had contrived to possess himself of a portion and carried it into the field where the cows grazed, and there left part of it, and the cow in question had eaten it.

Now, I should like to know if cows have ever been known to become carnivorous? How the animal managed to swallow about ten feet of small intestines without breaking them, how they were made to pass through the third stomach, and why the gastric juice in the fourth had not had more effect upon them than only to digest the serous coat of the intestines, is a mystery to me.

* * * * * * *

On the 13th ult., two or three days after sending you the account of my finding sheep's intestines in a cow's rectum, I made a *post-mortem* examination of another cow which died suddenly—that is, after four or five hours' apparent illness, for she was seen the previous night in apparently good health, but in the morning was found to have "taken the ground," and to be quite comatose. She died at about 11 o'clock that morning. Whilst making my examination *post mortem*, I found in the rumen a quantity of sheep's intestines, so matted together that at first sight they looked like a bunch of rags. This makes the former case to my mind more perplexing than ever; for in the latter the intestines had evidently become entangled together through the motion of the rumen; whilst in the first case referred to, the intestines were not at all matted together. If it had not been for the great anxiety shown by the man in charge of the first-mentioned cow as to her "puddings," I should almost be inclined to think some one had forcibly introduced the extraneous intestines *per anum* into the rectum.

I am, sir, yours truly,

ROBERT MORETON, M.R.C.V.S.

Hexham, *July* 1.

OBSTETRIC CASES.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—In reply to your remarks on the above in the *Journal* for June (p. 398), I am sorry I cannot throw any more light on the subject, as the cowman has left the situation; but in answer to inquiries at the time, I was told that the calf presented the ordinary appearance of a not quite fully matured calf, *minus* a part of one leg from the hock downwards, and that he did not notice, or look for, any defect in the placental membranes.

I am, yours obediently,

C. W. GREGORY.

Bristol, *June* 18, 1877.

SPAYING SWINE.

To the Editor of the VETERINARY JOURNAL.

SIR,—I venture to make an appeal (through the columns of your journal) to the feelings of the public in behalf of that very necessary and useful animal, the pig.

The practice of "spaying" sows is, I presume, generally known, though I fancy that few persons (comparatively) have been eye-witnesses of that operation. But I feel quite assured that those who have will confess that, even by the most skilful performer, it is one of the most painful that the animal world has to endure: and how much worse is it in ignorant hands, by which the torture must be much increased and prolonged!

I know it is, and has been, contended that at the time the sow is "hogging" she will lose condition, and that the sexual derangement interferes with her fattening. To this assertion I answer, that I have found sows that have not

been spayed fatten just as well as the spayed ; and I am now eating bacon of an unspayed sow, of the *finest quality*. Moreover, I have the opinion of one of the largest butchers in London, who only the other day assured me that the practice of spaying sows is quite unnecessary.

I should be *much* gratified if the above remarks would induce those who operate on sows at once to give it up, and that those who will not should be compelled by legislation to abandon a cruel and useless practice.

I remain, sir, your very obedient servant,

C. J. STEVENS.

Ravenscroft, Hammersmith, *July* 2, 1877.

TO CORRESPONDENTS.

COMMUNICATIONS from Professor Law, Messrs. Robinson, Wolstenholme, Greaves, and others, will appear in our next.

A correspondent forwards the following advertisement from a London daily paper. We trust that our inserting it in the Journal of the profession will not be accepted as giving any countenance to such an unhealthy and incompatible combination as that of horse-dealer and veterinary surgeon :—

> "IF you WANT a HORSE, Hackney, Harness, or Hunter, go to W. Sherley, horse-dealer and M.R.C.V.S.L., Twickenham Common. Ten minutes' walk from the station."

We have received a sample of Messrs. Hewlett's *Linimentum Saponis c. Myrrh et Benzoin*, which we shall try when opportunity offers, and report thereon.

Mr. J. Cammack is thanked for his generous remarks. We shall continue to labour, as we have now done for so many years, earnestly and disinterestedly, in promoting veterinary science and the welfare of the whole of its members, irrespective of the schools at which they may have studied, or their nationality. Our views and aim are too catholic to be limited by the walls of a teaching establishment. While we desire a large measure of success to all the schools, we are convinced that improvement can only be effected by the entire body of the profession.

Communications, Letters, Books, etc., Received.

COMMUNICATIONS have been received from Professor A. Smith, Toronto ; J. B. Wolstenholme, Manchester ; G. W. Bates, Toronto ; J. Cameron, Berwick-on-Tweed ; R. Moreton, Hexham ; Dr. Pavy, London ; C. W. Gregory, Bristol ; J. Colam, London ; J. D. Allman, London ; C. J. Stevens, London ; Hewlett and Son, London ; Professor Law, Cornell University, U.S.A. ; W. H. Coates, London ; W. Furnivall, Kingston ; J. W. Hill, Wolverhampton ; J. Reynolds, Liverpool.

BOOKS : *Chenier*, De l'Atrophie du Coussinet Plantaire ; *Megnin*, Monographie de la Tribu des Sarcoptides Psoriques ; Bulletin de la Société Centrale de Paris ; Report of the Brown Institution ; Annual Announcement of the Montreal Veterinary College ; *Zipperlen*, *Mandel*, and *Zundel*, Le Vétérinaire de la Ferme.

JOURNALS : *Archiv für Wissenschaftliche und Practische Thierheilkunde ; Recueil de Méd. Vétérinaire ; Archives Vétérinaire ; Journal de Méd. Vétérinaire et de Zoötechnie ; Wochenschrift fur Thierheilkunde ; Edinburgh Medical Journal ; Practitioner ; Live Stock Journal ; British Medical Journal ; Practitioner ; Thierarzt.*

NEWSPAPERS : *Farmer ; Mark Lane Express ; Agricultural Gazette ; Live Stock Journal ; North British Agriculturist ; Australasian Sketcher ; Illustrated Australian News ; Australasian ; Midland Counties Express ; Bournemouth Visitors' Directory* (3 copies); *New York Spirit of the Times* (2 copies).

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.